DOCUMENT RESUME

ED 062 271 SP 005 615

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TITLE	A Functional Competence Training Program for Development, Dissemination, and Evaluation Personnel at Professional and Paraprofessional Levels in Education.
INSTITUTION	Far West Lab. for Educational Research and Development, Berkeley, Calif.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C. Bureau of Research.
BUREAU NO	BR-0-9035
PUB DATE	Dec 71
GRANT	OEG-0-71-1194
NOTE	342p.
EDRS PRICE	MF-$0.65 HC-$13.16
DESCRIPTORS	Data Collection; *Educational Development; *Educational Research; *Manpower Development; *Surveys

ABSTRACT

The overall object of this report is to analyze requirements for development, dissemination, and evaluation of education research personnel; formulate and evaluate alternatives for meeting the requirements; design a comprehensive program involving new patterns for training and upgrading DD&E personnel; and implement and evaluate such a program. This report provides a survey of the Far West Consortium's present and long-range objectives, evaluation criteria, and information on procedures designed to achieve and evaluate intermediate and final operational objectives. The report begins with the outcome for the period ending December 18, 1971 and covers each year through August 31, 1974. A time chart of proposed activities, outputs and time commitments for key personnel responsible for the activities and descriptions of the member agencies and key personnel are presented. Appendixes provide internal (agency and task force) reports, plans and descriptive material. (MJM)

ED 062271

FINAL REPORT
Project No. 0-9035
Grant No. OEG-0-71-1194

A FUNCTIONAL COMPETENCE TRAINING PROGRAM FOR DEVELOPMENT, DISSEMINATION, AND EVALUATION PERSONNEL AT PROFESSIONAL AND PARAPROFESSIONAL LEVELS IN EDUCATION

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December 18, 1971

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Produced by FAR WEST LABORATORY FOR EDUCATIONAL RESEARCH AND DEVELOPMENT, a non-profit public organization supported in part by funds from the United States Office of Education, Department of Health, Education, and Welfare. The opinions expressed in this document do not necessarily reflect the position or policy of the Office of Education and no official endorsement by the Office of Education should be inferred.

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INTRODUCTION

The Far West Consortium has been in operation for ten and one-half months. These months have been productive in that the Far West Consortium has been established, large quantities of materials have been developed, systems have been developed, and the training program has become operational. In effect, the plan elaborated in "Design of a Functional Competence Training Program for Development, Dissemination, and Evaluation Personnel at Professional and Paraprofessional Levels in Education" (Hood, P., Banathy, B., Ward, J., and others, 12/15/70) has been followed. The sequence of activities established in this report has been accomplished without deviating from the schedule specified. There have been no changes in objectives as of this date, although there have been minor changes in procedures to meet some of those objectives.

The information contained in Section I of this report is essentially a summary of chapters 2, 4, and 5 of Volume I, and Sections C and D of Volume II, of the Design Report cited above. The section is a statement of rationale, objectives, and strategy.

Section II provides an overview of the Consortium's major objectives and evaluation criteria for each year as well as information on procedures designed to attain and evaluate the intermediate and terminal operational objectives for each year through August 31, 1974. Outcomes for the period ending December 18, 1971 are reported.

A general overview of the Consortium's long-range objectives for the period beyond August 31, 1974 is presented in Section III.

Section IV presents a time chart of proposed activities, outputs and time commitments for key personnel responsible for the activities; and descriptions of the member agencies and key personnel.

Appendices provide supporting materials in the form of internal (agency and task force) reports, plans, and descriptive material.

All completed course modules are submitted under separate cover.

A SUMMARY OF

A FIRST-YEAR REPORT ON THE FAR WEST CONSORTIUM

Late in 1970 the Far West Consortium completed its far-ranging plan for the design of a new transportable training system for educational R&D personnel. Specifically, this plan proposed the functional competence training of entry-level professionals (M.A. degree) and paraprofessionals (A.A. degree) now employed--or aiming toward employment--in educational development, dissemination, and evaluation. (In this report, we will refer simply to D,D&E training.)

Between February and December of 1971, much has been accomplished. The objectives outlined in the original plan remain constant. All activities and accomplishments are on schedule.

The Far West Consortium is composed of the following cooperating agencies in the San Francisco Bay Area:

1. FWLERD. Far West Laboratory for Educational Research and Development, Berkeley, California. The Prime Contractor.
2. SRI. Stanford Research Institute, Palo Alto, California.
3. HumRRO. Human Resources Research Organization, Monterey, California.
4. TIS. Technicon Information Services, Mountain View, California.
5. ETS. Educational Testing Service, Berkeley, California.
6. AIR. American Institutes for Research, Palo Alto, California.
7. Other D,D&E agencies.
8. SFSC. San Francisco State College, San Francisco, California.
9. CC. Cañada College, Redwood City, California.
10. SEA. State Education Agency. Department of Education, State of California, Title III programs.

Funding is supplied to the Consortium by the Research Training Branch, Office of Education, Department of Health, Education, and Welfare.

The rationale for formation of a consortium, quite simply, is that a cooperating network of educational R&D agencies and educational institutions can best develop a system for the training of D,D&E personnel. The group of Bay Area agencies and institutions listed above has already synergistically combined talents and experience and demonstrated that it can:

(a) design, develop, evaluate, install, and maintain training systems;

(b) offer vocationally-oriented curricula at the junior college level;

(c) offer graduate-level programs for those who seek to enter D,D&E jobs or improve their professional skills on the job;

(d) provide and support a number of internships or assistantship positions; and

(e) represent educational, community and student interests.

THE NEED

Manpower for educational D,D&E activities is scarce. Since passage of the Elementary and Secondary Education Act in 1965, institutions have sought personnel for professional and subprofessional positions covering all aspects of educational research, development, evaluation, dissemination, and utilization. An adequate pool of such experienced people simply did not--and does not--exist. Hence, most personnel recruited have had to be trained on the job, frequently by a trial-and-error process.

One study has estimated, at the most likely estimate of growth, that, in contrast to an estimated base of 4,125 persons in 1964, there would be 19,436 new research, development, and dissemination positions for 1974.

Approximately $250,000,000 was spent on educational research and development activities in the U.S. in 1968. For 1974, no estimates are yet available.

A 1970 study in the San Francisco Bay Area indicated that R&D agencies would probably hire more than 250 new employees in 1971-72 for positions in research, development, evaluation, and dissemination; 78 of these projected hires would be categorized as educational and federally supported. For the immediate Bay Area region, the Consortium has identified a sizeable (and more than sufficient) demand for training of paraprofessionals, entry-level professionals, and those already employed who need continuing training.

By extrapolating to the national employment scene, the Consortium estimated that from 10 to 30 other training programs will be needed by 1973-74 along the lines of the model outlined here. If this projection proves accurate, development of the D,D&E training program will prove cost-effective after installation elsewhere in the nation.

OBJECTIVES

The Consortium has analyzed D,D&E training requirements; is developing and evaluating all necessary components to meet those requirements; and has prepared a design for an overall program made up of new patterns for training and/or upgrading educational D,D&E personnel. At the job level, the focus is on technician, entry-level professional, and continuing-employment positions in educational laboratories, development agencies, and state, intermediate, and local education agencies.

We have prepared a full conceptual model and complete specifications for developing and evaluating a total system of D,D&E training. Operationally, the project is a collaborative effort among training systems developers, formal training agencies, apprentice training agencies, fieldwork agencies, and potential employers.

During 1971 the Consortium has:

(a) developed and tested a functional competency based training system;

(b) developed and tested modular training materials;

(c) assisted colleges to install courses that have been developed;

(d) assisted educational agencies in planning for and providing apprenticeship and on-the-job training positions;

(e) created a personnel system for recruitment, student management, and placement of D,D&E personnel;

(f) given special emphasis to preparing and upgrading minority personnel;

The Consortium will also:

(g) provide competent personnel (where little adequate training now exists) for D,D&E positions at technical and beginning professional levels;

(h) provide an efficient means for the upgrading, retraining, and continuing education of already-employed D,D&E personnel; and

(i) provide implementation materials so that, after rigorous field testing, similar systems can be easily established anywhere in the nation.

THE FUNCTIONAL SYSTEMS

As an integrated system, the Consortium has these functions:

1. Design and development functions of planning, constructing, and validating the training system.

2. Implementation functions of (a) planning for installation and (b) operating the training system and its support system.

3. Administration of the personnel being trained. (Job market

surveys, orientation, motivation, guidance--as well as personnel administration--for trainees and Consortium employees.)

4. Integrative functions of systems planning, programming, and managing.

5. Evaluating the operation and output of the overall project.

A TECHNOLOGICAL APPROACH FOR TRAINING

The Consortium employs a rigorous, systematic, and efficient pattern of design and development.

Systems analysis uses a set of planning procedures to analyze and define the problem; determine the objectives, constraints, and resources; develop and evaluate alternative systems models; and specify requirements.

Derivation of objectives (both behavioral and operational) follows these steps:

1. Analyze the system in which the job occurs to understand the context surrounding the job.

2. Develop a tentative inventory of the duties and tasks the job requires.

3. Check that inventory by having it reviewed by a sample of job incumbents and immeduate supervisors.

4. Convert the inventory to a questionnaire to determine priorities for training (how many perform the job, is the task critical, is on-the-job training easy, etc.?).

5. Using this information, decide whether the skill is to be taught and, if so, to what degree of proficiency and where (formal institution, internship, on the job).

6. For formally-taught tasks, analyze to identify key skills and knowledge.

7. Organize these into a hierarchy of objectives, with a full statement of behavioral performance conditions and standards.

The resulting list of objectives guides the development of training and the evaluation of performance.

Systems synthesis. This concept implies that:

1. System requirements and performance objectives have been established.

2. Alternative systems and their components (for instance, personnel systems, formal training systems, internship training configurations,

sequence and method of instruction within a training module) are examined to determine how to assemble components of systems and relate systems to attain specified performance objectives, meet other requirements and attain a satisfactory (hopefully optimal) cost-effectiveness tradeoff.

Quality control. This is essential for development and operation of an effective training program. Crucial to quality control is the development, refinement and maintenance of adequate evaluation procedures, including extensive diagnostic monitoring, monitoring of trainee achievement, component and system monitoring, and overall program evaluation capabilities.

DESIGN REQUIREMENTS

The technological approach outlined is guided by a number of major design requirements:

1. Need assessment base. The Consortium reviewed national manpower projections and surveyed its own region to ascertain personnel requirements, perceived training needs, and number and type of potential apprentice and job-placement positions. (Most earlier studies had focused only on training of researchers.)

2. Job and task analysis base. The Consortium has studied the structure of D,D&E jobs to assure appropriate training. However, training objectives never stand still, so they will be progressively refined during the development and operational phases. As soon as feasible, these objectives will be stated in terms of required behaviors or operations, contexts or conditions, and standards. Accept-reject-recycle decisions will affect both students in training and the elements of the training system itself.

3. Functional context approach. After orientation for the trainee to the entire job, learning follows a whole-to-part sequence, with the instructional program built upon a graded series of tasks. New skills and knowledge are learned on the job or in simulated work situations, with each task or topic introduced in relation to the whole job. Each task the student learns is explored and mastered in the specific context of job specifications.

4. Multi-level spiral programming. Through sequencing, fundamental concepts, skills, and knowledge areas are revisited with increasing complexity on successive levels. Tutorial and team-training sessions stimulate interaction among students with different levels of experience.

5. Engineered training and internship environments. Active learning--with demonstration, practice, progressively-more-difficult exercises, competency-assessment exercises, and use of varied training aids--is the hallmark of this competency-oriented, functional-context approach.

6. The engineered internship provides an extended and intensive opportunity to apply what has been learned at a given level for a given program (e.g., creating a product, if the trainee is at the professional level). Toward the end of the course, the trainee develops a plan of work he wants to carry out at a particular D,D&E agency. The supervisor, the trainee, and his counselor negotiate the plan and set up a three- to six-month internship. Employer, trainee, and instructors thus arrange for specification of job responsibilities and assignments, performance checkpoints, and a synthesis between the work and academic domains. Supervisors and trainees receive orientation and counseling, supplemented by regular review sessions with cooperating agencies.

7. Testing for job competency. Trainees, trainers, and supervisors all receive training in skills and competencies at various levels, in all critical job domains, at job sites and at institutions.

8. Coordinating academic and work domains. Development agencies and academic institutions work together in developing the training program and the engineered internships, thus bridging the gap between the world of work and academics.

9. Continuing adaptation. To meet various needs, the training model provides for easy and efficient evaluation, modification, refinement, and elaboration.

10. Adaptability. The model is designed flexibly so that it can be easily implemented, replicated, adapted, and maintained on a cost-effective basis. Trainees will be equipped with generic skills that are exportable to varying educational environments.

11. Transportability. The design provides for needs, values, capabilities, habits, operating characteristics, and resources of all potential users as presently visualized. Flexibility of design assures relatively easy adaptation in varying locations. Moreover, Consortium members, representing a broad range of conditions and talents, are determined to produce an implementable training program that will be operationally tested, refined, and made available nationally.

PROGRAM CONTENT

A series of eight courses, each divided into a number of modules, when developed, will comprise the instructional program. Of these eight courses, three, Analysis and Definition, Dissemination and Marketing, and Management, will be developed on the entry-professional level only. The rest are being developed on both entry-professional and paraprofessional levels. The courses are described below.

Analysis and Definition. This course will provide the trainee with an orientation to such areas as systems analysis, operations analysis, problem identification and problem definition. The trainee will practice establishing needs and identifying problems in a variety of educational settings. Besides collecting information on problems and needs from documentary information, he will also have extended experience in developing and refining statements of mission, objectives, constraints, selection and articulation of design concepts, and collecting data on or making a priori judgments regarding alternatives, estimating feasibility, etc.

Planning and Design. This course will provide orientation to and familiarization with a broad set of competencies associated with laying out the overall plan for a development or operational solution and the design work of a plan. The trainee will formulate goal statements based on a statement of system requirements; derive from goal statements performance specifications; consider or invent alternative ways and means by which specifications can be met; analyze and select the most cost/effective alternative; learn ways to present the selected alternatives; and prepare plans for development, evaluation and dissemination.

Developmental Engineering. This course will provide the trainee with an orientation to the wide variety of activities and procedures that may be required in fabricating a product or generating a replicable process. Through a series of selected developmental case studies, protocols, simulated tasks, and projects, the trainee will learn how to: establish developmental objectives; fabricate a simple component and combine components; use test information as a basis for modification or improvement; learn to make judgments as to the quality of the component under development and suggest revisions; and locate and employ technical materials, aids and resources for development.

Evaluation. The fundamental objective of this course will be to give the trainee considerable experience in making both formal and informal judgments and decisions. Trainee activities will center around: the logical and methodological bases of evaluation; the kinds of evaluation unique to D,D&E activities; a selected set of techniques and procedures for coping with practical evaluation problems. Case studies and projects will offer the trainee opportunities to evaluate the status of a project and plan next steps, e.g., abandon the project, abandon or modify a specific approach, collect additional data, recycle and redevelop, or proceed to the next stage. Sample areas of formal treatment are: examining the test conditions, reviewing the nature of the instruments used, examining the evaluation design, comparing expected outcomes with actual outcomes, etc.

Dissemination and Marketing. The overall intent of this course is to provide familiarization with and understanding of media, graphics, reproduction processes, market research, legal constraints, communication techniques, etc., as they relate directly to dissemination and marketing. In the course, the trainee will learn how to disseminate educational products and processes by participating in actual or simulated tasks involving the field of public information, public relations, and educational marketing. The training modules encompass relevant aspects of journalism, photography, public appearances, publications, audio-visual presentations, visitor reception, telephone contact, letter writing, mailing lists, market analysis, copyright, etc.

Information/Data Collection and Organization. The modules of this course will be designed so that the course can be treated as a unit or separated into two subcourses, one dealing with collection and organization of documentary information and the other dealing with collection and organization of quantitative and qualitative data. The information portion will focus on competencies in search, retrieval and organization of documentary information with emphasis on basic library research skills, and proficiency in the use of ERIC, DATRIX, CIJE, etc. The data portion will be substantially larger in scope and will focus on providing familiarization with commonly encountered methods of obtaining data, and basic procedures for reducing, organizing, analyzing and displaying it.

Communication Skills. This course focuses on receiving, organizing and transmitting information or instruction through oral, written, and visual media in informal, formal, and technical contexts. The trainee will acquire competencies in listening, reading, note taking, conference techniques, interviewing, briefing, technical writing, informal and formal report preparation by means of communication exercises and projects derived from analysis of the frequent and critical communication requirements faced by D,D&E personnel. Additional areas of competence treated in the course include writing and making oral presentations and using visual aids in making such presentations; writing reviews of literature, press releases and dissemination information; summarizing test data; preparing brochures describing projects, activities, products or agencies.

Management. This course is organized in three basic sections: personnel, operations, and budget. The personnel section provides, through role playing and simulated situations presented by written, filmed, or videotaped protocols, experience in performaning such tasks as interviewing job applicants, evaluating employee performances, work planning, and other supervisory activities. The operations section deals with management by objectives, work assignments, production scheduling and control, maintaining communication between teams and departments, etc. The budget section deals with development of cost estimates and budgets for projects or programs, adjustment of cost factors, operation of cost control and cost data collection systems, understanding record keeping procedures, etc.

Each course consists of modules comprising discrete, complete learning units within the larger framework. Upon entering a course a student is pretested to determine his competencies and insufficiencies. If he demonstrates adequacy in one or more modules, he is given credit for them. Students can work individually and in small groups. A continuing education student may enter the program for only one module. All students meet from time to time to report on experiences and progress.

The learning environment, including equipment, books, tasks, and instructional managers, is arranged in a flexible manner. In place of lectures and routine class meetings are conferences, seminars, and special reports. The "teacher" functions more as a guide and resource person than as a reader of notes. Academic study is supplemented with audio-visual aids and with field trips to exemplary R&D agencies and industries.

In short, every effort is made to set the student in a realistic, functional, goal- and job-oriented milieu--that is, in a functional context for learning.

ACCOMPLISHMENTS OF THE FIRST YEAR

A D,D&E model training program has been created, its systems have been designed in detail, and prototype testing of some subsystems has begun. The Consortium Board met twice during the year to review progress and make decisions regarding problems and future decisions. In addition, job and task analysis data have been reviewed, job competencies and training requirements specified, and supporting systems developed. Firm budgets have been drawn in terms of the overall funding that has been provided.

Consortium objectives have been established, a chart of activities for a four-year period has been drawn (with an accompanying budget), and contracts have been negotiated and signed with agencies and individuals for specific developmental, instructional, and managerial tasks. Consortium member responsibilities have been defined and funds allocated.

Two additional institutions have joined the training program: Merritt College in Oakland and Contra Costa College in Richmond. Six Laboratory employees are enrolled in two Consortium courses offered on Laboratory premises under the auspices of Merritt College. Seven Concentrated Employment Program trainees from Richmond are enrolled in two Consortium courses under the auspices of Contra Costa College.

Consortium members submit monthly progress reports on activities, problems, and special requirements. Telephone contacts, memoranda, on-site visits, conferences, seminars, discussions, and formal meetings contribute to the smooth functioning of the integrating system.

During the first semester's work with college instructors, it has already become evident that the role of instructional manager is not necessarily a comfortable one for present college instructional personnel, since the functions required in this new context do not fit the current concept of what a college instructor believes he has been hired to do. There has been a tendency for instructors to schedule too many class meetings as contrasted to individual sessions with trainees. Instructors have thus far been slow to change their instructional techniques, but the transition should be easier in the spring semester after the experiences of the fall semester have been digested and internalized. Clearly one of the "hidden" goals of the training program will be to effect some significant changes in institutions of higher learning and in the instructional personnel employed therein.

A paraprofessional (A.A. level) program, including internship programs, has been launched with 35 students at Cañada College, Redwood City, under a subcontract. An entry-level professional program (M.A. level), including internship programs, has been launched with 25 students at San Francisco State College, again under a subcontract. All M.A.-level students are serving engineered internships, but the Consortium has been less successful, to date, in arranging salaried internships for A.A. level students. Most of the latter are engaged in voluntary work at development agencies or are making field visits to such agencies. The 25 M.A. openings at San Francisco State College were oversubscribed, so that a waiting list already exists for future positions. Inquiries about possible positions in the program continue to flow in regularly. Thus, it appears evident that there will be no difficulty in recruiting potential students. To assure that engineered internships are more readily available to the A.A.-level students in the future, planning and budgeting have been refocused on this problem toward an early-1972 resolution of the problem.

In September 1971 prototype testing of the planning and design course and the information/data collection and organization course at the entry-professional level and at the paraprofessional level have begun at San Francisco State College and Cañada College, respectively. Also, the communication skills course at the paraprofessional level is being prototype tested at Cañada College.

Actual development of the prototype versions of the courses listed above continues to run ahead of the needs of students and instructors, but slightly behind the schedule set by the developers themselves.

In the spring of 1972, both San Francisco State and Cañada will offer courses in developmental engineering and evaluation; San Francisco State College will prototype test the entry professional version of the communication skills course.

In the fall of 1972, San Francisco State College will begin prototype testing of three new courses: analysis and definition, dissemination and marketing, and management. In addition, field testing of other courses will be initiated at both San Francisco State and Cañada Colleges.

Virtually all students registered for internships in 1971 have been assigned to employers in the Bay Area. Participating institutions include: SRI, AIR, ETS, the Laboratory (all Consortium members), Longfellow School (Berkeley), and Sullivan Associates (Menlo Park). Moreover, six unemployed aerospace engineers are being retrained at AIR through internships and on-the-job use of Consortium-produced materials. In addition, planning has begun with the University of California at Berkeley for an advanced graduate-level program in the School of Education.

To accommodate Laboratory employees enrolled in the continuing education program administered through Merritt College, a learning laboratory has been set up in a small room at one of the Laboratory's three Berkeley locations. It contains reference materials, a microfiche reader, a calculator, a drafting board, a typewriter, and examples of development products.

A budgeting, monitoring, and accounting system for the D,D&E training program has been designed and is in operation. ETS has contracted to develop evaluation system instruments as well as techniques for evaluating internship progress, training materials, and all other aspects of the program. In the early stages of development, the Consortium is obviously more concerned with validating the effectiveness of its training materials and methodology than with training large numbers of students. Hence, the number of students will not be increased during 1972--especially since the Consortium has already doubled the student load projected for its first year of training effort. The Consortium will not attempt to expand its base by attracting additional employer support until all training materials have been successfully tested under operational conditions. For the present, all energies will be concentrated on development of materials, methods, and systems and on arranging satisfactory engineered internships for the current group of enrolled students.

Evaluation, which has been running slightly behind schedule, is being emphasized so as to correct this delay. The ETS-developed evaluation system is being implemented at both San Francisco State and Cañada; information is being gathered and stored. Already some formative feedback has been collected from students and instructors to prepare for the revision of those instructional modules already offered at the colleges. Structured interviews with both students and instructors have been conducted by disinterested third parties. In addition, an external review board, consisting of Dr. David Clark, of Indiana University, Dr. Sam Sieber, of Columbia University, and Derek Nunney, Oakland Community College (Michigan), met at the Laboratory in early December to evaluate overall progress of the Consortium up to that point.

Dr. Maurice Eash of the Evaluation Center, University of Illinois, is reviewing and suggesting improvements in the Consortium's evaluation system. A Laboratory national advisory committee--consisting of Normal Boyan, Robert Gagné, Thomas Hastings, Kenneth Larken, Edward Pine, Grant Venn, and William Wolf, Jr.--has also reviewed the developmental model.

The USOE site visits in 1971 indicate that not only is the Consortium accomplishing its stated goals on schedule, but appears further to be one of the most systematic, productive, and efficient of the training programs currently under development.

SECTION I

CONSORTIUM PURPOSE AND RATIONALE

This section provides an analysis of manpower projections for D,D&E and a general statement of the consortium's overall objectives, the general program strategy, and the rationale supporting the design of the project.

SECTION I. CONSORTIUM PURPOSE AND RATIONALE

Survey and Analysis of Manpower Requirements in R,D&D

Beginning with the post-Sputnik support of science and language curriculum reforms and impelled by funding under the Elementary and Secondary Education Act of 1965, there now exists a major demand for personnel qualified to perform at various professional and subprofessional levels across the entire research, development, dissemination and implementation continuum.

Projections of Demand

Clark and Hopkins (1969), in an extensive study, made projections suggesting that in comparison with an estimated base of 4,125 persons in 1964, the most likely estimate for 1974 is 19,436 research, development and dissemination (R,D&D) positions. This is approximately a five-fold increase; the minimum growth projected for the 1964-1974 period is three-fold and the optimum growth is seven-fold.

Under the minimum growth assumptions (which may be the most realistic), research positions are projected to decline from 95.6% of the total of R,D&D positions in 1964 to approximately 38% in 1974, development positions are projected to increase to 45% of the 1974 total as compared to 3.2% in 1964; and diffusion positions are projected to be 15% of the total versus 1.2% in 1964. Under the most likely conditions, between 1964 and 1974 over 2,300 new developer and 850 new diffusion positions will be created. Under the least optimistic estimates, the increases are still substantial; 628 new developers and 229 new diffusion positions would be required.

Clark and Hopkins's analysis of the situation led to these conclusions:

1. The vacuum created by demand far exceeding available supply will be filled with whatever leadership and staff talent is available, whether or not that talent has any special qualifications for the new responsibilities.

2. The projects and programs supported by new funding programs will take on the characteristics of the personnel available to act as staff. Consequently, neither the agencies which provide the funds nor the institutions which adopt the new objectives of the funding agencies will, in fact, be able to secure the objectives established.

3. Serious slippage will occur in the measurable progress of R,D&D organizations because of the time devoted to finding virtually non-existent personnel. (Clark & Hopkins, 1969, pp. 423-424.)

Recent Studies of Employers' Needs and Training Programs

Given the changing allocation of fiscal resources for educational R&D outlined by Hopkins and Clark (1969), it is clear that new requirements and needs for research, development, dissemination and evaluation talent are already perceptible. Among efforts to establish content substantive baselines for the manpower projections of Hopkins and Clark, the Task Force Survey of the American Educational Research Association (AERA) and the Survey of Fleury, Cappelluzzo, and Wolf are notable.

Fleury, Cappelluzzo, and Wolf (1970) obtained information about R,D&D training, practices of current training programs, and expectations of potential employers from four sources: (a) all 85 graduate-level educational research training programs then supported by the U.S. Office of Education, (b) 47 (of 50) chief state school officers, (c) 178 (of 241) Massachusetts school superintendents and (d) 11 (of 15) prominent independent research institutes.

Their analysis of the responses leads to four major conclusions:

1. The evidence suggests that there will be shortages of research, development and diffusion personnel in the field of education in the immediate future. The training programs are structured to supply candidates for conventional college level research positions, but are not meeting requirements for development and diffusion personnel. Although employers see a need for the technician-scholar in their agencies, the applied character of their work calls for more pragmatic employment practices.[1]

If the demand for R,D&D personnel materializes, the 85 surveyed training programs may be able to service only the research training requirements well. In addition, surveyed employers may be called upon to initiate intensive inservice training programs to meet their own requirements.

2. The personnel requirement projections for the immediate future imply a need for programs at other than the doctoral level. A master's level or six-year program is needed and employers are receptive to hiring such personnel. Yet only 8 of the 85 programs provide sub-doctoral programs.

3. Trainers and employers seem to be working at cross purposes in terms of selection, job responsibilities, and exposure to the field of education. Presently the trainers are oriented primarily to college and university employment positions.

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[1] This kind of finding is not confined to education. In a major survey of technological manpower needs in industry, it was found that "While industry prefers to hire technological personnel from university sources, the current limited number available from the university sources obliges industry to resort to a form of industrial cannibalism." (Jacobs & Swanson, 1966, p. 210.)

4. While colleges and universities will continue to absorb most of the "R" talent, they are in direct competition with local, state and federal education agencies and independent (and commercial) research agencies for the few "D&D" specialists trained each year. As the demand for "D&D" personnel rises, provisions will have to be made for their training.

Sanders and Worthen (1970), in a study for the AERA Task Force on Training Research and Research-Related Personnel, relied on telephone interviews with a selected sample of 58 persons who either employed or supervised research or research-related personnel in one of 10 types of institutional settings. One third of the respondents were in university settings and the remainder from laboratories, R&D centers, independent research organizations, education agencies, etc. As the authors note, some of the data they present is difficult to summarize but it is clear that the employers ranked three of the four evaluation functions (context evaluation, input analysis, and process evaluation) highest, followed in order by development, outcome evaluation, research and diffusion. However when frequency with which functions were listed as the most important is examined, the order of importance becomes development, research, context evaluation, product evaluation, diffusion tied with input analysis, and finally process evaluation.

It is difficult to do justice to the wealth of detail contained in the Sanders and Worthen report, but what clearly emerges is the high importance which these employers attached first to evaluation and then to development, followed in order by research and diffusion.

Also emerging from this study is the fact that persons located in each of the ten types of institutional settings may engage in a wide spectrum of R&D functions. The priorities placed on functions may differ with the institutional setting, but all the seven major functions are relevant to programs in any of the institutional settings. As a methodological note, Sanders and Worthen observed, "It seems desirable to have practitioners in research and research-related activities project training needs for the future, rather than depending on opinions of those removed from practical realities.

York (1968) provides supporting information in a survey of organizational arrangements and training programs for R&D utilization by educational practitioners. Based on a year-long search of the literature and follow-up correspondence, 80 exemplary organizational arrangements and 24 training programs were selected, described and evaluated. York concludes:

> Our current information indicates that no single training program is providing school research personnel with the necessary skills across the entire knowledge utilization continuum....Presently the most adequate training being provided school research personnel is in the area of evaluation techniques and research design skills. This conclusion is in agreement with the findings of last year's surveillance

> report (Carlisle, 1967). While last year's report concluded that information utilization skills were the most inadequately developed areas of training, our current information indicates that the skills in which the least training is being provided are (1) needs assessment, (2) long-range planning, and (3) systematic analysis of present conditions. (York, 1968, pp. 9-10)

Hood (1969) reanalyzed the information in the York report and concluded that only three knowledge utilization functions, dissemination, field testing, and evaluation of test results, were supported by more than half the educational R&D utilization organizational arrangements. Notably absent were provisions for long-range planning, present condition analysis, needs analysis, problem formulation, and decision making. Less than a fourth of the arrangements provided for these functions. The picture for the 24 exemplary training programs is remarkably similar to that of the organizational arrangements. Training in conduct of experiments or field testing, and in evaluation of results, are the two predominant subject areas. None of the programs explicitly treats design and conduct of demonstrations of exemplary educational products and practices, only two of 24 dealt with training in needs analysis or decision making, and less than a fourth dealt with such subjects as long-range planning, present condition analysis, problem formulation, information research, information interpretation, dissemination, or implementation.

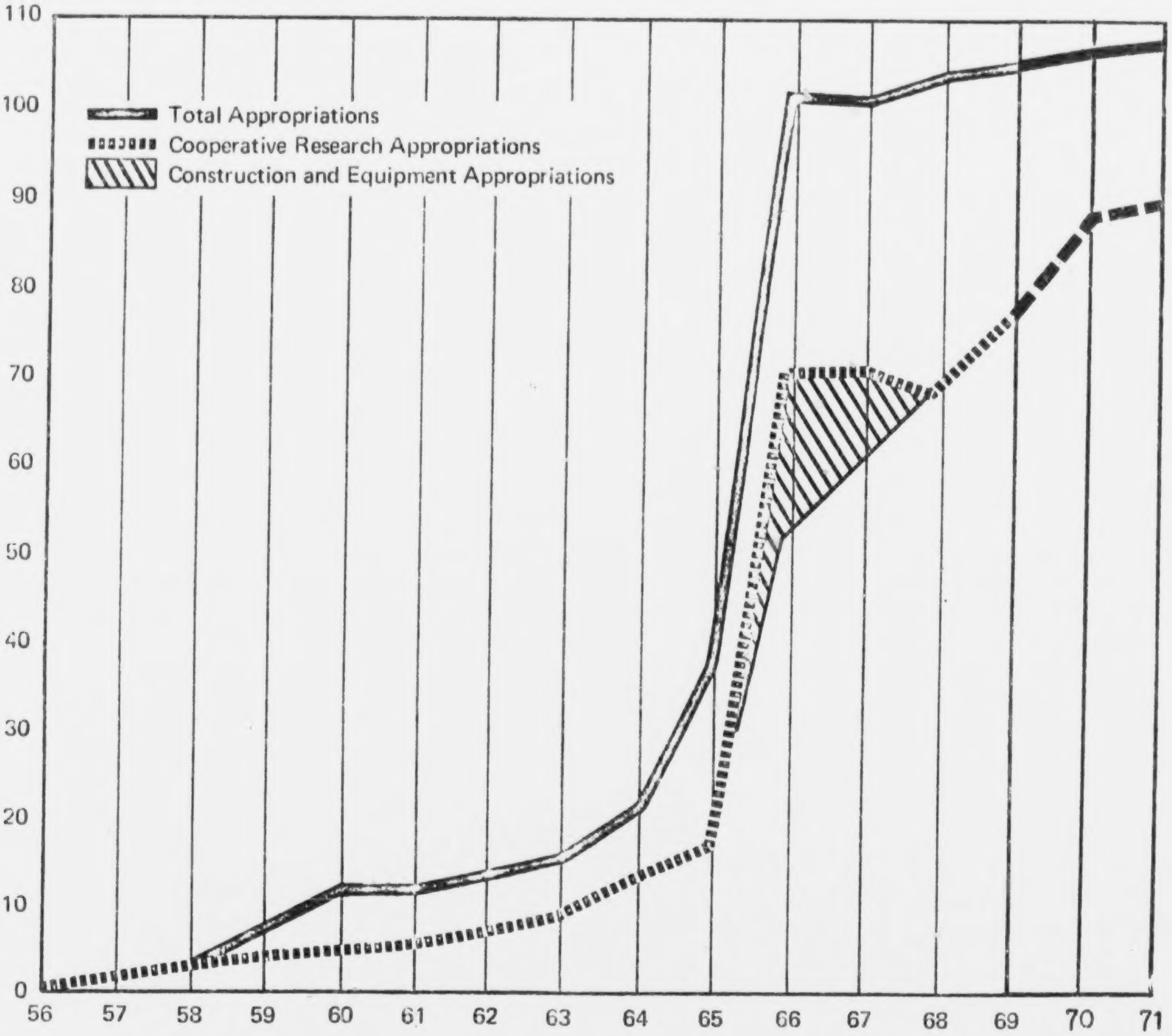
Gideonse (1969, p. 115), on the other hand, uses a figure which when extended to FY 1971 (Figure 1) shows a major discontinuity in O.E. "Research and Training" funds between FY 1965 and 1966. Since FY 1966 there has been an almost level rate of total expenditure, which, when discounted at the conservative 5% inflation figure chosen by Clark and Hopkins, is actually seen as a loss. To cite Rogers and Worthen's analysis of 1968-1970 AERA employment service data:

> The reversal of trends between 1969 and 1970 is startling. The market for research and research-related personnel is down in virtually all areas, doubtless due to reduced funding of critical research programs. This has resulted in less demand in research, development, and diffusion than even the most pessimistic projections of Clark and Hopkins (1969).
> (Rogers & Worthen, Sept. 1970, p.10)

Figure 1

APPROPRIATIONS FOR "RESEARCH AND TRAINING"

U. S. OFFICE OF EDUCATION, 1957-1969 + 1970, 1971



Reexamination of Projections

To return then to the Clark and Hopkins projections, we find them both more optimistic and more narrow than seems warranted based on 1970 information. The analysis rests on the explicit assumption,

> that the limitations imposed upon program growth and expansion during fiscal years 1967-1969 are viewed as unusually stringent and will not be continued during the period FY 1970-1974. (Clark & Hopkins, p. 121)

In point of fact these stringent levels continued into FY 1970 and 1971, and there was no clear evidence that conditions for FY 1972 would be markedly better. In fact, as noted above, the almost constant dollar level implies a diminishing actual level due to inflation.

To provide a range of possible endpoints Clark and Hopkins make three projections: "Least Optimistic," "Most Likely," and "Most Optimistic."

> Except when available information indicated that a program was being reduced or phased out . . . it did not appear reasonable to assume that a program (over time) would fall below its current level, however. As a result, the Least Optimistic projection exhibited the funds needed to support a FY '68 level of operation.
>
> . . . Readers who do not wish to accept the caveat to the general assumption underlying the study (i.e., that the unusually stringent funding support for FY '67-'69 will be increased during FY '70-'74) may rely on the Least Optimistic projection to furnish them a description of the situation which will exist in 1975 if funding awards are not increased beyond what is needed to maintain current levels. (pp. 127-128)
>
> In order to use the best data available, a Least Optimistic projection of future funding was prepared for each program by adding a numerical constant of five percent per year to the FY '68 funding of the program and to each year thereafter . . . . (p. 141)

Clark and Hopkins comment:

> Since funds have been tight for two or three years, it may be of interest to examine the projected situation should funds remain tight. Only the educational laboratories and vocational educational R&D centers would grow significantly. The subunits most adversely affected would be the regular D and D projects, the RCU's (again, a special case), and small and regular RD&D projects.
>
> A characterization of the situation depicted might be as follows:

> Development and diffusion programs and projects are to be given the greatest support.
>
> If funds remain tight, the support given development and diffusion will be at the expense of research projects.
>
> Programs are to be supported beyond projects.
>
> Since the more expansive programs are in new settings (laboratories, public schools) and directed toward new objectives (special D and D projects, clearinghouses), the near future will be a period of turbulent organizational and change roles.
>
> ESEA-created and fostered programs will be leading the press for organizational and role change. (pp. 231-232)

Seen from a slightly later perspective, these observations are generally valid. In terms of relative gains, R,D&D in support of handicapped children has been a more significant gainer than the laboratories, but certainly development and diffusion have gained relatively at the expense of research (and training).

The Clark and Hopkins analysis starts from the baseline projection of personnel who are supported by the sample of USOE and NSF programs included in the study. It then proceeds to logically derived projections of growth in populations of R,D&D personnel not included in the baseline sample (i.e., to include such areas as business and industry).

When these projections are carried out for the Least Optimistic projection, we derive (Table 1) from the results reported in Tables 80 and 83 of the Clark and Hopkins Report:

Table 1

Estimated Number and Percent of Positions in RD&D for 1964 and 1974

	Research	Development	Diffusion	Total
1964 Estimated Number	3,944	132	49	4,125
1964 Percentage	95.6	3.2	1.2	100.0
1974 Least Optimistic Projection	4,874	5,772	2,181	12,827
1974 Least Optimistic Percentage	38.0	45.0	15.0	100.0

The immediate implication of this table is that the threefold increase projected for total R,D&D from 1964 to 1974 (if FY '72-'74 does not see appreciable funding increases over the FY '68-'71 levels) will have a substantially different impact on R,D&D positions. New positions and percent increases over 1964 positions will then be: research, 930 new positions (24%); development, 5640 new positions (4273%); and diffusion, 2132 new positions (4351%).

Projections of this demand suggest that, compared with an estimated base of 4,125 persons in 1964, the most likely estimate for 1974 is 19,436 research, development and dissemination (R,D&D) positions, approximately a five-fold increase. The minimum growth projected by Hopkins and Clark for the 1964-1974 period is three-fold and the optimum growth is seven-fold.

Under the minimum growth assumptions (which may be the most realistic), research positions are projected to decline from 95.6% of the total of R,D&E positions in 1964 to approximately 38% in 1974, development positions are projected to increase to 45% of the 1974 total as compared to 3.2% in 1964; and diffusion positions are projected to be 15% of the total versus 1.2% in 1964.

Taking note of the large numbers of positions projected by Clark & Hopkins (1969, Table 80, p.282) under Least Optimistic conditions for research institutes and agencies (2400) and for business and industrial organizations (1200) we turn to their discussion of these two employment categories.

> Personnel in private research institutes (e.g., American Institutes for Research, Science Research Associates) and in private social service and welfare agencies. . . identified in 1964 were 300, all of whom were categorized as program personnel. It appeared . . . that the prospects for growth in this setting were excellent . . .
>
> The final projections, then, were derived by computing an increase . . . of 800 percent for the least optimistic . . . (p. 275).

Regarding business and industrial organizations,

> This setting was not strongly represented in either the 1964 description or the baseline projections. The former suggested there were no fewer than 150 R & D persons in this setting; the latter, because there were no persons in this setting in the USOE or NSF proposals sampled in FY '66, projected no persons in this setting. The size of the investment being made by major corporations indicated that the number of positions supported by business in industrial organizations in 1974 would be many times the combined totals of the 1964 description and baseline projections . . . (pp. 278-279)

On the basis of one study (Phi Delta Kappan, Sept. 1966, p. 22) reporting a projected increase of from $500 million in 1966 to $5-to-$10 billion in 1976, an 800 percent increase was projected under the Least Optimistic conditions.

As we shall note later, there is reason to believe that the narrow definition of educational R & D persons employed, as well as the specific points of departure for this study may have led to serious underestimation of both the private and the business R & D enterprise in 1966. For instance the professional staffs of AIR, SRI and HumRRO, to mention only the members of the Far West Consortium who were involved in educational or training R & D in 1966 approached 300. Further when one examines only the demand for personnel and training R & D generated within industry by defense and aerospace contracts in 1964, the figure of 150 appears as a gross underestimate. The Systems Development Corporation alone (which in 1964 might have been classified as a private research institute, but is now a profit making corporation) employed more R & D training personnel than this.

In both of the above examples we have deliberately extended the arena for "educational R,D&D" to include training and social systems R,D&D. Certainly, for purposes of projecting the manpower and training requirements for R,D&D personnel supporting elementary, secondary and higher education, this does not seem warranted. But if we consider the total national manpower resources available and the competing markets for trained R,D&D personnel in education and training it seems provincial to project the employment demand only in terms of the needs of elementary, secondary and higher education.

Comparison of Estimates Based on Clark and Hopkins to Those of Gideonse

By reference to an estimated Least Optimistic projection (OE and NSF only) of 5,131 positions at $148,019,000 (Clark and Hopkins, p. 249) we arrive at a FY '74 cost of $28,848 per full time professional position. Then referring to the Least Optimistic final projection for all personnel of 12, 827 positions in 1974, we arrive at an estimated 1974 dollar cost of $370,033,000. Finally adjusting this 1974 figure back to 1968 (at 5% compounded discount rate) we arrive at $262,976,000. The import of this figure is seen by reference to Gideonse (1969, Table 31, p. 117) which provides a documented minimum base of financial support for educational research and development by sponsoring agency in FY 1968 at $192,290,000 and an estimated expenditure of $250 million (Table 2).

Gideonse notes:

> In sum, the amounts on Table 31 document the absolute minimum amount expended on educational research and development activities in the United States in fiscal year 1968. A conservative additional estimate based on the five conditions stipulated above [private foundations support more than is reported to Science Information Exchange (SIE), the absence of abstracts from the Department of Defense to match the probable R & D level of activity, some ESEA Title I and

> III activities are under represented, very little reporting from industry to SIE, some SIE and NSF abstracts reported unknown funding level] would be the documented base total about 25 percent. We judge, accordingly, that approximately $250 million was spent on educational research and development activities in the United States in fiscal year 1968. (Gideonse, 1969, p. 117)

Table 2

Documented Minimum Base Financial Support for Educational Research and Development by Sponsoring Agency

Agency	FY 1968
United States Office of Education	$101,967,000
National Science Foundation	23,326,000
National Institute of Mental Health	11,860,000
National Institute of Child Health and Human Development	8,377,000
Office of Economic Opportunity	12,800,000
Department of Defense	6,046,000
Other Federal Agencies (Labor; Commerce; Children's Bureau; Agriculture; Social Rehabilitation; Interior; and Endowments for Arts and Humanities)	6,725,000
Private Foundations	7,344,000
All Other (State agencies; higher education institutions; professional and academic associations; etc.)	13,845,000*
Total	192,290,000

*The SIE-and DDC-collected material produced a figure somewhat lower than this. To it have been added amounts equal to available NSF figures representing the fiscal year 1965 obligations of State agencies and fiscal year 1967 local government agency obligations for educational R&D.

Although Gideonse's estimate of $250 million is simply a 25% increase over the documented financial support in 1968, the Clark and Hopkins Least Optimistic projection (discounted at 5 percent per year) leads to a remarkably similar figure of $263 million. The immediate implication seems to be that unless there is a substantial increase in educational RDD&E funding for FY '72-'74, the Least Optimistic estimate provided by Clark and Hopkins may be quite reliable for making the national manpower projection.

Gideonse observes:

> In fiscal year 1968, the United States expended $250 million on educational research and development. Using the latest figures available Clark and Hopkins estimate a 1964 manpower pool of 4,125 full time equivalent persons. Estimating the cost per full time professional at approximately $30,000 at that time it is apparent that the real investment in 1964 . . . was somewhere in the neighborhood of 124 million.
>
> The fiscal year 1968 sponsored investment . . . represents [after corrections for inflation] . . . an expansion of some 70 percent . . . .[2]
>
> One inescapable conclusion is that a heavy press currently exists on the trained personnel available. Some of the slack has been taken up by the entry of personnel into educational research from other academic disciplines and from industry. Some . . . by . . . recent doctoral recipients. A great portion . . . by . . . on-the-job training, particularly in the fields of development, dissemination and diffusion. . . . Finally, the increase in the manpower utilized is also partially explainable in terms of . . . a larger number of lower technical roles without necessarily creating additional demands for highly trained researchers. (Gideonse, 1969, pp. 123-124)

Gideonse's last point prompts us to return a moment to the Clark and Hopkins study to note that it seems apparent that their projections deal almost exclusively with "professionals" since their projections lean so heavily on the National Register of Educational Researchers (Bargar et al., 1965; Hopkins and Clark, 1969, Appendix A and Appendix F). The 1964 figure of $30,000 per full time professional (Gideonse, 1969, p. 123) or the 1974 figure of $28,848 calculated above, p. D6, tends to confirm this impression. What then, accepting either Hopkins and Clark's or Gideonse's figures, is the demand for paraprofessionals?

Experience in industrial hardware development indicates a range of 0.51 to 1.94, technician per professional engineer (Jacobs & Swanson, 1966). A quick check of the five developers in the Far West Consortium indicates that for every doctorate or master's level professional there are 0.54 persons at B.A. level and below who are serving in paraprofessional support

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[2] Gideonse's estimate of approximately $30,000 per full time professional in 1964 is grossly above the Clark and Hopkins data, which suggest a similar figure ($29 to $30 thousand) for 1974. Their base number of persons and funding base lead to a figure for 1966 of $20,225 (4263 positions at $86,223,000). (Clark and Hopkins, pp. 237 and 230.) If this figure is discounted at 5% to 1964 we derive a figure of $18,344 which is substantially lower than $30,000.

(not secretarial) positions, and our survey of nearly one thousand D,D&E positions in the San Francisco Bay Area region shows that for every doctoral or master's level professional, there are 1.22 persons at the B.A. level and below.

As will be seen in our job and task analysis, there is every reason to believe that, given proper training, the ratio of paraprofessional to professional can be effectively increased to meet projected D,D&E demands.

Far West Regional Requirements

There was a need to establish the size and characteristics of the regional demand for D,D&E personnel within the immediate future in order to (a) establish that there would be a demand of sufficient size to warrant the creation of viable training programs within the Far West Consortium region, and (b) provide rough estimates of the ability of the United States to support several such consortia. The need for estimates of demand in order to justify the creation of a training program within a college or university is quite obvious. The second kind of estimate is also important since this proposed model is based on the assumption that its long-range cost-effectiveness is dependent on transportability to several other regions where a similar demand may exist.

In order to establish an estimate of regional demand and to identify prospective employers an extensive effort was undertaken to establish who were the employers of educational and training RDD&E personnel in northern California, and especially in the greater San Francisco Bay area. Names of prospective employers were compiled from personal knowledge of consortium members, from professional and organizational directors, from the Foundations Directory (1970) and from USOE Current Projects Information (July, 1970).

Through October 21, 1970, 115 organizations and firms were contacted, with 34 reporting that they employed personnel in educational or training R, D, D or E. These employers indicated that they currently employed 985 professionals or paraprofessionals in educational or training work and that their estimated need for new employees in this field for 1971 and 1972 would total 255. These preliminary survey returns are examined by level of training in Table 3.

Table 3

Currently Employed and Projected Hires 1971 and 1972

by Professional Level

Levels	Currently Employed	Projected New Positions 1971-72
Doctorate	178	40
Masters	268	89
Bachelors	319	78
High School & Some College	220	48
Total	985	255

When the numbers presented in Table 3 are reexamined to estimate how much of this demand exists in terms of "educational" and federally supported RDD&E (elementary, secondary or higher eduation as well as military training) versus the business and industrial training sector, we find the following (Table 4):

Table 4

Comparison of Educational and Other Federally Supported Versus Business and Industrial Training Demands for RDD&E Personnel in the San Francisco Bay Area

	Educational and Federally Supported		Business and Industrial Training	
	Employed	Projected Hires	Employed	Projected Hires
Doctorate	98	17	80	23
Masters	115	26	153	63
Bachelors	98	21	221	57
High School or AA	42	14	178	34
Total	353	78	632	177

These results suggest that the market for trained personnel is substantially larger than might be estimated if only a narrow concept of "educational" R and D is taken. In the San Francisco Bay Area region current and projected new employment at doctoral levels in the business and industrial sector is almost as large as all other educational and federally supported sectors, and it is markedly larger for the sub-doctoral levels.

Perspective on Manpower Transfer between Educational RDD&E and Business/Industry

As Gideonse noted, "Some of this slack has been taken up by the entry of personnel into educational research from other academic disciplines *and from industry*" (italics ours). The manpower transfer between educational R and D and industrial (or military) training R and D is obviously a two-way flow which will depend on the market. Presently it is possible that those entering educational D,D&E from military or industrial training settings may have a marked advantage in experience over the "educational researcher." Given more effective patterns for training educational D,D&E personnel, it seems equally obvious that the business and industrial training employer will be competing with the "educational" employer for the available trained talent. From the Office of Education perspective, this may be a sobering prediction. Certainly, it raises serious questions regarding who benefits from heavy OE investments in traditional graduate programs and post doctoral grants.[3]

Six brief examples may illustrate the concept of an RDD&E component which could be included in career training programs of the late 1970's and beyond in the modern labor market of the United States.

Police science. Law enforcement departments at all levels would benefit significantly from the technical competence and awareness of one or more officers trained in research, data development, community survey techniques, analysis of data, storage and retrieval of information and information dissemination.

Computer Programming. Nearly all trainees in computer science would benefit from a scientific and detailed program training component focusing on RDD&E procedures. Computer programming on a national scale at the present time suffers from inadequate preparation of programmers in organization of data, research techniques and dissemination of information.

Transportation Careers. Movement of passengers and freight, particularly air freight, is dependent upon skilled technicians who need many of the skills involved in RDD&E procedures. Thousands of trainees in this rapidly expanding field could benefit from a well-developed, rigorous RDD&E training component tailored to meet transportation program needs.

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[3] Gideonse gives data suggesting that the 1968 or 1969 cost of USOE educational research training programs was approximately $6,300 per trainee in a graduate program and $20,000 per trainee in a post-doctoral program. (Gideonse, 1969, p. 122.)

Aviation Careers. Movement of people and materials through the air is growing at such a rapid rate that not only are airports and planes unequal to the task but also support personnel on the ground are lacking in required technical competence. Effective data input and use of information systems are critical in aviation. Employees of the future will need training of the kind proposed for an RDD&E skills component.

Business Management and Marketing. Particularly in the "crossroads-of-the-world" of the San Francisco Bay Region, the major employment field is wholesale and retail business operations. Marketing, processing and manufacturing industries of the future will require literally thousands of persons trained in the techniques of marketing research, survey techniques, computer information systems, identifying significant data and decision making based upon computerized information sources. A training component based upon performance objectives in RDD&E skills and aimed toward individualized development can make a significant contribution toward the improvement of business and industrial operations.

Education, Social Welfare and Civil Service Agencies. An RDD&E training program with spiral curriculum components focusing on professional and paraprofessional careers in public service is essential for orderly growth of research, development and dissemination services in these public agencies.

We have reason to believe that the "industrial cannibalism" observed among hardware-oriented R & D firms in their recruitment of engineers and technicians trained largely on the job by other firms (Jacobs & Swanson, 1966) will also be encountered in the educational, training and social systems RDD&E arena also. From the standpoint of national welfare, we are concerned with the quality of this total RDD&E manpower pool. From the standpoint of the college or university, asked to inaugurate a program in "educational D,D&E" it is reassuring that a sufficient demand for graduates in a specific geographic area can be projected. But for the special interest of the U.S. Office of Education, whether these interests be broad or narrow in their perspective, the paramount concern may be that of finding the most cost effective solution to assuring supply of trained personnel to meet priority needs of educational RDD&E.

Summary

In this analysis of manpower requirements we have tried to make the following points:

At least through FY 1971 Clark and Hopkins' expectations, that the limitations on expansion during FY '67-'69 were transient and that continuation over any extended period of time was unlikely, was overly optimistic. In fact, as Gideonse graphically shows (Figure 1, p. 6), the sudden increase in OE appropriations for "research and training" between FY '65 and FY '66 was the unusual element, and since FY '66, for six years now, the real, uninflated dollar value of the total appropriations has in fact declined. Consequently for the OE and NSF projects considered in Hopkins and Clark's study, their Least Optimistic estimates may be the most accurate and instructive. The analysis by Gideonse tends to corroborate this Least Optimistic figure.

On the other hand, our own experience and analysis suggest that there are at least two omissions in the surveys to date: namely (a) there is a sizeable underestimate of the total national demand for professionals competent in educational, training and social systems RDD&E (personal work experience of several members of the staff of the Far West Consortium cause us to believe that one can easily move from one of these settings to another); and (b) there has been an almost complete failure to take into account the potential role of the trained paraprofessional in alleviating the demand on scarce professional RDD&E talent.[4]

For the immediate San Francisco Bay area the enumerated demand of identified employers is sizeable and certainly more than sufficient to warrant establishment of programs for training of (a) paraprofessionals, (b) entry level professionals and (c) the large number who are already employed and need advanced continuing education.

Rough extrapolation to national demand suggests that as many as 10 to 30 replicates of the proposed Far West Consortium Functional Competence Model at the size projected for 1973-74 could be supported at that time. Hence, there seems to be a clear justification for our assumption that a replicable model based on rigorous development, evaluation and design for implementation or adoption elsewhere would be cost effective.

The overall problem appears to be too few competent personnel for the development, dissemination and evaluation (D,D&E) of educational products and projects. This insufficiency will undoubtedly continue unless a training program can be developed and its effectiveness demonstrated for producing personnel qualified to perform D,D&E work.

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[4] The more mature R & D to be found in the physical science areas has not overlooked the technician (e.g. Jacobs and Swanson, 1966; Bergen, 1959). Hardware engineering project experience, according to Bergen, suggests that approximately 30% of engineering analysis work may be assigned to technicians (for example collection of information on prior art and estimates, discussion with other departments on their experience). Technicians may also be employed on design, construction and test of prototypes, including major portions of shop and purchasing department liaison and much of the actual testing, including establishing of standard test specifications, conduct of the test, and compilation of test data. Between 30% and 60% of the pilot production design work may be done by technicians provided that major assistance is provided in checking work. As much as 90% of the shop liaison may be handled by technicians; probably 70 to 80% of the set up and conduct, performed by technicians under the supervision of engineers, and finally technicians would be able to handle major efforts in the areas of checking and finalizing of drawings and specifications, preparing engineering-manufacturing instructions, preparing technical information for installing, operating and servicing, and in training service personnel. (Bergen, 1959)

Objectives of the Project

The overall objective of the Far West Consortium in light of the foregoing analysis is to analyze D,D&E training requirements, formulate and evaluate alternatives for meeting the requirements, design a comprehensive program involving new patterns for training and upgrading D,D&E personnel, and implement and evaluate such a program.

Emphasis as to job level is on the technician and professional entry-level jobs in educational laboratories, development agencies, and state, intermediate, and local education agencies.

The intent of the program is to:

a. develop and test a Functional Competence Training System Model

b. develop and test support modules

c. aid colleges and universities in developing courses and curricula relevant to D,D&E training needs.

d. aid educational laboratories, development agencies, and state, intermediate and local education agencies in planning for and making available apprenticeship and on-the-job training positions

e. create a personnel system for recruitment, student management and placement of D,D&E personnel

f. provide special emphasis on the preparation and upgrading of minority personnel

g. provide competent personnel for D,D&E positions at technical and beginning professional levels (where, for the most part, no adequate training now exists)

h. provide an efficient vehicle for upgrading, retraining and continuing education of personnel already in D,D&E positions

i. be adaptable to a variety of needs and contexts and provide complete implementation engineering so that similar systems may be easily established anywhere in the country.

The Rationale for a Consortium Approach

Clark and Hopkins (1969, pp. 422-485) suggest the need for a strategy and outline a series of tactics for meeting educational RD&D manpower requirements. One of the major short term objectives in their view would be the establishment of a training network to produce development and diffusion personnel in large numbers in a relatively short period of time (p. 426). They suggest several tactics relevant to this objective, including the (a) establishment and support of experimental or developmental training programs, (b) initiation of course content improvement programs, and (c) establishment of consortia of institutions for inservice development of D & D personnel in education.

Taken together, these three recommendations suggested the basis for a new pattern which would combine the strengths of several kinds of agencies.

An optimum configuration of cooperating institutions we believe will require:

1. one or more agencies with competence in the design, development, evaluation, installation, and maintenance of training systems;
2. one or more junior colleges with competence and commitment to the development and service of vocationally oriented curricula;
3. one or more colleges and universities which are willing to develop and provide graduate level programs for personnel who wish to gain entry to D,D&E work at the professional level;
4. two or more large agencies with programs or projects involving substantial elements of development, evaluation or diffusion work that can provide and support a number of internships or assistantship positions;
5. several agencies which are potential employers of educational D,D&E personnel and are willing and able to create probationary and permanent personnel;
6. representation for educational, community, and student interests.

Such a configuration seems desirable since it is highly unlikely that any single unit listed above can establish the program. For several reasons, it appears that a combination of on- and off-the-job training will be more economical and effective than either alone. (See, for example, Continuing Education for R & D Careers, Renck, Kahn and Gardner, 1969). Few educational D,D&E agencies are large enough to support, much less develop, the necessary on-the-job training and coordinate it with available off-the-job courses. Large agencies capable of providing well-organized internship or assistantship training positions seem essential.[5] The Consortium should, however, include participation of other educational agencies, including state, intermediate and local educational agencies, and small profit and nonprofit agencies, which can support effective on-the-job training and are important employers of D,D&E personnel. Finally, a sensitivity to community and student interests and a concern for their active participation suggest the need for their representation in the consortium management.

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[5] Students of training research usually have stipulated the necessity for training where research is being done (Buswell, 1966). Empirical studies of the effect of research assistanships on productivity in the field of education (Buswell, 1966; Worthen, 1968) all call attention to this problem.

Such a coordinated and integrating involvement of these several kinds of agencies can indeed become a strong alliance for producing needed manpower.

Composition of the Far West Consortium

The constituent agencies of the Far West Consortium for D,D&E training are: (Initials keyed to Figure 2)

FWLERD	Far West Laboratory for Educational Research and Development, Berkeley, California. The Prime Contractor.
SRI	Stanford Research Institute, Palo Alto, California.
HumRRO	Human Resources Research Organization, Monterey, California.
TIS	Technicon Information Services, Mountain View, California.[6]
ETS	Educational Testing Service, Berkeley, California.
AIR	American Institutes for Research, Palo Alto, California, and other D,D&E agencies.[7,8]
SFSC	San Francisco State College, San Francisco, California.
SMCC	San Mateo Community College District, Redwood City, California.
MC	Merritt College, Oakland, California.[9]
CCC	Contra Costa College, San Pablo, California[9]
UCB	The University of California, Berkeley, School of Education, and other schools of education. UCB is cooperating in developing an advanced-graduate-level Consortium program. The Far West Laboratory also has cooperative relationships for development and testing with the schools of education of Stanford University and San Jose State College; and with UCB Extension. Appropriate roles for these are expected to evolve.
SEA	State Education Agency. Department of Education, State of California, Title III programs.
LEA	Local and other education agencies providing students and supporting services for them. (See Cooperating Agencies, Section IV.) The Far West Laboratory has cooperative relationships with over 100 school districts in the testing of Laboratory products. Additional schools from these and other agencies (such as county schools and Title III Centers) will be involved as appropriate roles develop.

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[6] Assumed Lockheed Information Systems contract.

[7] AIR serves at this time in the dual role of developer and training institution. See Appendix L for retraining program for unemployed aerospace workers.

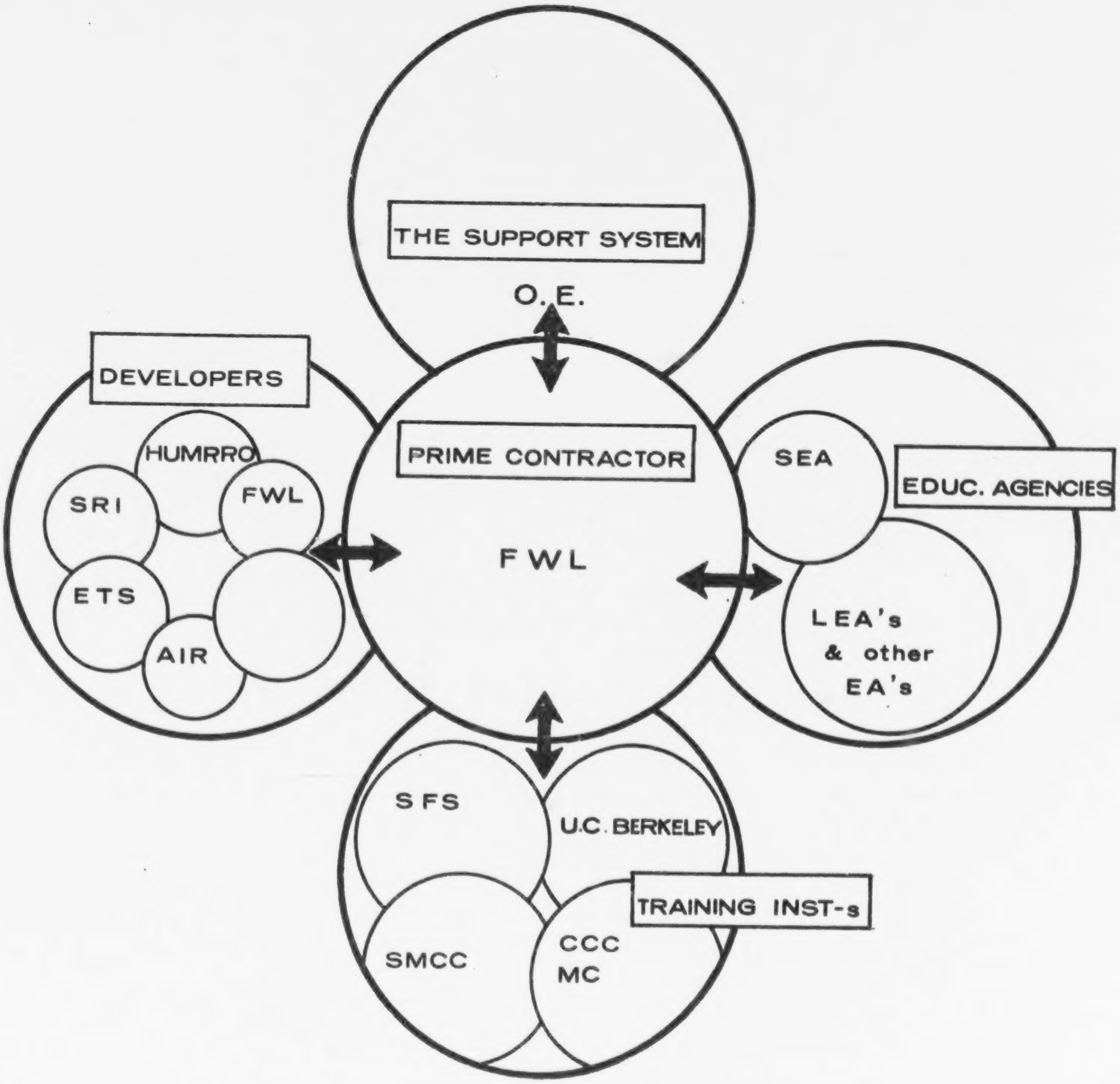
[8] The training model calls for testing in a larger institutional configuration in later operational phases. A number of development institutions have expressed interest in participation in these phases.

[9] Merritt and Contra Costa Community Colleges provide credit for Consortium courses held at the Far West Laboratory.

Figure 2 shows a Specific Agencies model of the Consortium.

Figure 2

THE FAR WEST CONSORTIUM FOR D,D & E TRAINING


THE SUPPORT SYSTEM
O.E.
DEVELOPERS
HUMRRO
SRI
FWL
ETS
AIR
PRIME CONTRACTOR
FWL
SEA
EDUC. AGENCIES
LEA's
& other
EA's
SFS
U.C. BERKELEY
TRAINING INST-s
SMCC
CCC
MC

Functional Constituents of the Far West Consortium

The Far West Consortium for D,D&E Training, as an integrated system, has the following constituent functions:

1. integrative--systems planning, programming, management and communication
2. design and development--planning, constructing and validating the training system
3. implementation--planning for and operating the training system
4. employing training personnel
5. administering for the personnel trained
6. evaluating the operation and the output of the consortium

Constituent systems of the consortium have been designed to carry out these functions. A process map of the consortium, indicating functions and roles and also displaying some of the key interface relationships within the consortium, is presented in Figure 3.

A brief description of the functional systems follows.

Training Development. The output of this system is a set of training programs developed and validated to meet D,D&E training needs: formal training, conducted at training institutions on the technical and professional entry levels; highly engineered internship training, conducted on the job site; continuing education (self-directed/self-development).

Training Implementation. This system implements the training program developed above. The output is students.

Employment. Output of this system consists of providing support and demonstration activities including both long-term and internship employment.

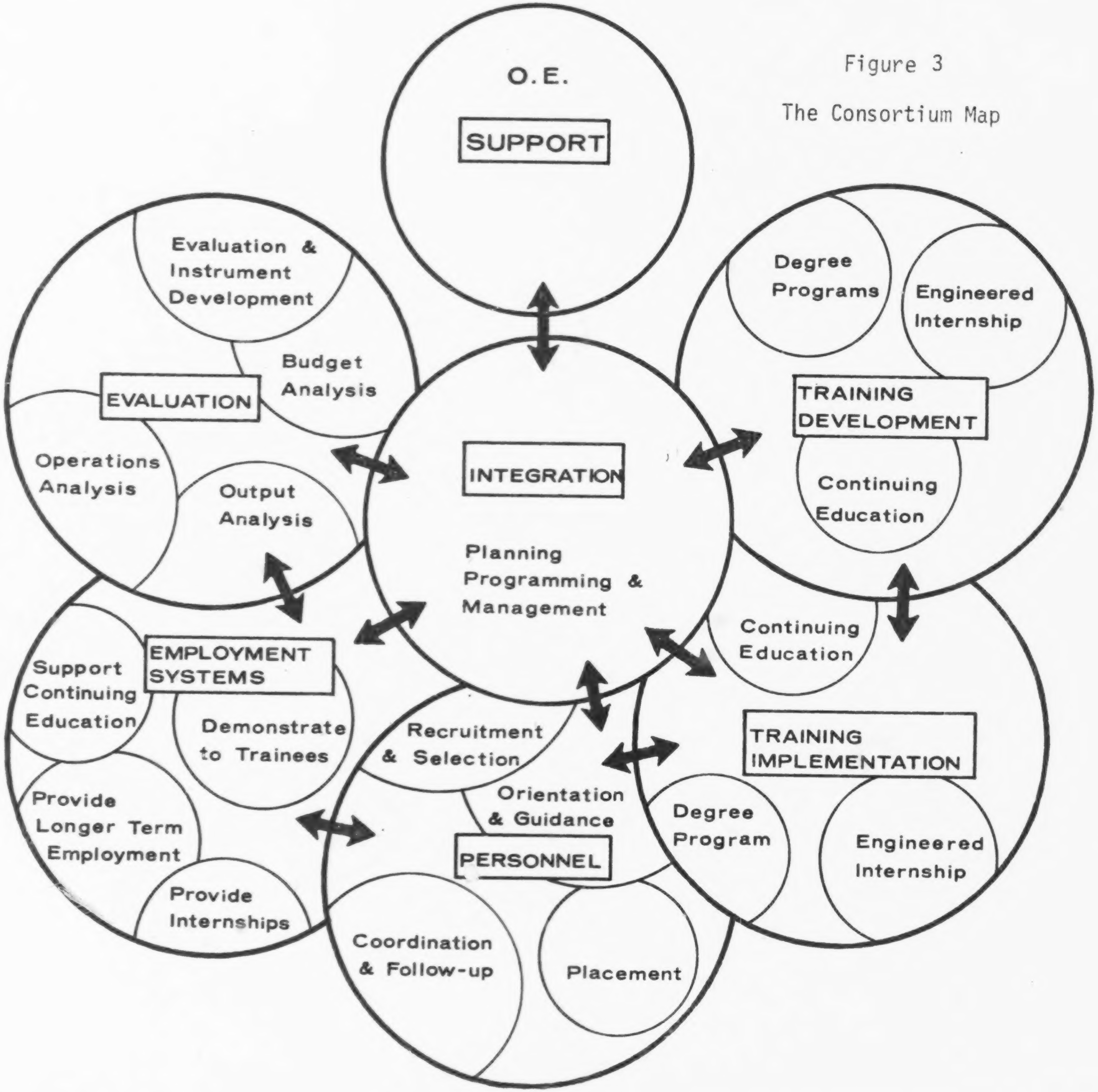
Personnel. This system serves placement functions including job market surveys and follow-up; orientation, motivation and guidance of trainees; and personnel administration for trainees and consortium personnel.

Integration. This system coordinates the efforts of all the agencies and institutions in the functions of planning, programming, systems management, internal evaluation and communication.

Evaluation. Output of this system is the independent evaluation of the operations and products of the consortium.

Figure 3

The Consortium Map


O.E.
SUPPORT
INTEGRATION
Planning
Programming &
Management
TRAINING DEVELOPMENT
Degree Programs
Engineered Internship
Continuing Education
TRAINING IMPLEMENTATION
Continuing Education
Degree Program
Engineered Internship
PERSONNEL
Recruitment & Selection
Orientation & Guidance
Coordination & Follow-up
Placement
EMPLOYMENT SYSTEMS
Support Continuing Education
Demonstrate to Trainees
Provide Longer Term Employment
Provide Internships
EVALUATION
Evaluation & Instrument Development
Budget Analysis
Operations Analysis
Output Analysis

Conceptual Framework for Training

A Technological Approach

Over the past two decades a body of concepts and techniques for effective training has emerged, largely through the efforts of military and industrial R & D personnel, but with contributions from the field of programmed instruction. Although accessible and voluminous, it apparently is not well known to educators.[10] However, examples of applications in public education can be found (for example Kishkunas, 1967 and Swenson, 1968).

Our premise is simple. If one is to undertake the design and development of new patterns for training D,D&E personnel in education, this effort should be rigorous, systematic, and as efficient as possible. The technology arising out of applied research and development in military, industrial and educational settings has been proven, repeatedly, to afford the best approach. It is not a guarantee, but it is an extremely powerful heuristic, which, if applied by experienced and creative developers, provides a high probability of success.

The key concepts of this technolgy are systems analysis, derivation of objectives, systems synthesis and quality control.

Systems analysis. This concept involves a set of planning procedures which attend to analysis and definition of the problem, determination of objectives, constraints and resources, development and evaluation of alternative systems models, and specification of requirements (Gagné 1962, Stolurow 1964, Eckstrand 1967).

Derivation of objectives. In training systems, one of the major requirements is behavioral or operational objectives. The derivation of objectives follows these usual steps:

1. The system in which the job occurs is analyzed to provide an appropriate understanding of the context surrounding the jobs.
2. A tentative inventory is developed of the duties and tasks which the job requires.
3. The inventory is checked for completeness through review by a sample of job incumbents and immediate supervisors.
4. The inventory is converted to a questionnaire to determine priorities for training based on such factors as number of

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[10] See for example: Cogan (1967), Crawford (1959, 1962, 1967, 1970), Eckstrand (1967), Gagné (1962), Glaser (1962), Hood, Showel & Stewart (1967), Cogan (1966), McCaslin and Cogan (1964), McClelland (1965), McNight (1966), Smith (1964, 1965, 1966, 1967, 1968), Stolurow (1964), Uhlaner (1967) and Valance and Crawford (1962). Possibly the most comprehensive documentation is to be found in Smith (1968).

people performing each task, importance or criticality of the task, ease of training on the job, etc.

5. Based on this information, a decision is made as to whether a task is to be taught at all, and, if so, to what standards of proficiency, and where (formal training institution, formal engineered internships, or informal on-the-job training).

6. For those tasks to be taught formally, a detailed analysis identifies appropriate enabling knowledges and skills.

7. These are organized into a hierarchy of objectives with a complete statement of behavioral performance, conditions, and standards.

The list of objectives provides the guidance for the development of training and performance evaluation.

Systems synthesis. This concept implies that:

1. System requirements and performance objectives have been established.

2. Alternative systems and their components (for instance, personnel systems, formal training systems, internship training configurations, sequence and method of instruction within a training module) are examined to determine how to assemble components of systems and relate systems to attain specified performance objectives, meet other requirements and attain a satisfactory (hopefully optimal) cost-effectiveness tradeoff.

Quality control. This is essential for development and operation of an effective training program. Crucial to quality control is the development, refinement and maintenance of adequate evaluation procedures, including extensive diagnostic monitoring, monitoring of trainee achievement, component and system monitoring, and overall program evaluation capabilities.

Design Requirements[11]

Systems analysis, derivation of objectives, systems synthesis, and quality control are basic to the training technology approach. There are a number of special characteristics which we impose as major design requirements.

1. A need assessment base. Our initial design steps included review of existing information regarding national manpower projections and a survey of the Far West regional requirements to determine in detail the personnel requirements, perceived training needs, and number and kind of potential apprentice or job placement positions.

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[11] For a more complete discussion and examples of the requirements outlined here, see Chapter 7 of Volume I and Section F of Volume II, of the Consortium Design Report. (Hood et al., 1970)

2. A job and task analysis base. Both empirical and analytical procedures are being used to determine the particular structure of D,D&E jobs so that appropriate training can be offered.

3. A functional context approach. This approach to training moves the learner into the center of the instructional scene. The trainer introduces arrangements into the environment of the learner which facilitate learning. The functional context approach includes an orientation to the entire job with the topics arranged so that the relevance of each to the whole job can be demonstrated to the learner. Teaching will follow a whole-to-part sequence in presenting functions or procedures, with a graded series of tasks so that each new task requires the student to master new knowledge and skills. Application of skills will be accomplished on the job or in simulated work situations.

4. Multi-level spiral programming. Spiral sequencing describes a multi-level training program in which fundamental concepts, skills and knowledge areas are repeated with increasing complexity on successive levels of training.

5. Longitudinal development. Development and evaluation resources have been focused on the model of an adaptive system that can be easily expanded or adapted to serve a much more comprehensive set of personnel training needs. An initial operational phase will concentrate on a small, mutually reinforcing, technically interesting mix of highly relevant jobs. Later operational phases will test the model with other or larger job-training configurations.

6. Modular instructional units. Training content can be organized around a number of areas and sub-areas common to several D,D&E jobs at different levels and organized in modular units (Modules) based on skill clusters.

7. Integrated training. The training program involves two kinds of integration: content training accomplished by design, control, and continuous communication among training agencies; and facilitation of trainee interaction in a variety of ways in both on and off-the-job settings.

8. Engineered training and internship environments. The competency oriented, functional context approach will place heavy emphasis on active learning, with demonstration, practice, progressive-difficulty exercises, close supervision, competency assessment exercises and utilization of a variety of training aids and methods.

9. Testing for job competency. The design must project training in skills and competencies at various levels of involvement, in all critical job domains, and at job sites as well as institutions; and for trainers and their supervisors as well as trainees.

10. Coordinating the academic and work domains. A relationship between the development agencies and the academic institutions will be established as the training program and the engineered internships are developed.

11. Continuing adaptation. The training program model carries within its basic structure the capability for easy and efficient evaluation, modification, refinement and elaboration to meet a variety of needs.

12. A design for replication or adaptation with implementation. The development cost of the model we are proposing cannot be justified if it is not transportable, implementable, acceptable, and maintainable. Transportability require built-in flexibility, evaluation in terms of a wide range of situations, testing, revision, and refinement.

13. A design for long-term cost effectiveness. The model has been designed and will be monitored throughout its development with practical and realistic concern for diffusion, implementation, maintenance, and widespread adaptation or adoption.

14. A comprehensive D,D&E training design. The training designed around specifically identified generic skills and competencies will make trainees capable of operating in widely varying educational environments.

15. Synergic effects of the program. The benefits of pooling a variety of services are brought about by the designed integration of the systems of the Consortium.

16. Differentiation in the program. The training design will allow for a certain degree of specialization as well as various job levels.

Summary

A large number of new positions in RDD&E may be expected to open up within the current decade. These will include both professional and paraprofessional positions, with an increasing demand for paraprofessionals. The ratio of supporting paraprofessional workers to professionals is already rather high.

Projections of demand in the literature are based on differing definitions of educational RDD&E and the scope of responsibilities of the workers. Analysis and the experience of the consortium agencies, however, suggest that the national demand for professional workers in the related fields of education, training, and social systems are seriously underestimated; and that the trained paraprofessional can alleviate much of the shortage of professionals. As training improves, a two-way flow of trained personnel may be expected between educational/training/social systems RDD&E and business/industry/military RDD&E.

The identified demand in the San Francisco Bay region is great enough to warrant training programs for paraprofessionals, entry-level professionals, and employed personnel who need extended or additional RDD&E skills.

To meet D,D&E training needs, a consortium of cooperating institutions and agencies is seen as being able to establish new patterns in on- and off-the-job training programs, including well organized internships. The Far West Consortium has designed an integrated training program to which each member agency contributes in terms of its own expertise. The program is capable of being implemented by other Consortia in varying situations. It is designed to be soundly based in terms of learning principles. It is built upon functional systems which make possible the complete integration of all aspects of the program. This overall structure is the framework of content and of the arrangements enabling the trainee to function within that content.

SECTION II

CONSORTIUM PLAN - FEBRUARY 1, 1971
to August 31, 1974

This section provides an overview of the consortium's major objectives and evaluation criteria.

SECTION II. CONSORTIUM PLAN

In this section the consortium plan is described under three reporting periods, each divided into the major tasks which the consortium aims to accomplish during each period. Headings are coordinated with those of the Time, Task, and Talent (TTT) chart shown in Section IV. The numbers of the objectives correspond to the numbers of the tasks in the TTT chart. Objectives, procedures, and outcomes are presented for each task and sub-task that falls within a given time period. It should be remembered that a task may have certain objectives which do not apply during a given reporting period and consequently do not appear for that period. The major tasks are:

1. The design, development, and evaluation of the overall system
2. The integration of the various component systems
3. The design, development and programming of the training program, its component courses, engineered internships, and staff developments
4. The implementation of the training program
5. The design, development, and implementation of the personnel system
6. The design, development and implementation of the employment system
7. The design, development and implementation of the evaluation system
8. The design and development of the implementation package for dissemination.

FEBRUARY 1, 1971 to DECEMBER 18, 1971

TASK 1. SYSTEM DESIGN, DEVELOPMENT, AND EVALUATION

General Objective: To design, develop, and evaluate a D,D&E functional competence training system model.

Criterion for Evaluation: Evidence that the D,D&E functional competence training system model has been developed and is effectively meeting the requirements for training and upgrading personnel for educational D,D&E.

Actual Outcome: A D,D&E training model has been established, its systems designed, and prototype testing for some subsystems initiated.

Objective 1.2:[12] To design the various subsystems of the functional competence training system model in detail.

DETAILED SYSTEM DESIGN

Procedures to attain objective:

1. Determine the functions of the various subsystems in meeting the requirements of the functional competence training system model.
2. Specify required interaction and interdependence between the various subsystems.
3. Assign priorities to designing the various subsystems.
4. Assign work to be accomplished on each subsystem within existing time and budgetary constraints.
5. Produce subsystem designs for conceptual testing, reviewing, and critiquing.
6. Revise subsystem designs for prototype testing.

Procedures to evaluate objective:

1. Test subsystem design against design parameters and design requirements stated in Consortium proposal.
2. Test subsystem against specified interaction/interdependence requirements.

Actual Outcome: Detailed system designs were completed and prototype testing initiated.

Objective 1.3: To develop a functional competence training system model for training and upgrading personnel for educational D,D&E. SYSTEM DEVELOPMENT

Procedures to attain objective:

1. Establish a need assessment base. This includes a review of existing information regarding national manpower projections and a survey of the Far West regional requirements and perceived training needs, and number and kind of potential apprentice or job placement positions.

2. Re-examine priorities regarding professional levels, functional context, and institutional job settings to determine levels of training required.

3. Review job and task analysis data.

4. Specify job competencies.

5. Specify and examine training requirements.

6. Relate design of training to institutional constraints and consortium resources.

7. Develop supporting systems.

8. Define and delineate content.

Procedure to evaluate objective: Examine logical consistency and sufficiency of the outcomes of the eight steps described above.

Actual Outcome: Procedures 1 through 8 were completed and the prototype testing of the functional competence training system model has been initiated.

Objective 1.4: To evaluate the effectiveness of a functional competence training system model for training and upgrading personnel in educational D,D&E. SYSTEM EVALUATION

Procedures to attain objective:

1. Review the overall approach to systems evaluation as described in proposal.

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[12] Note that certain tasks may not apply during a given reporting period so do not appear for that period.

FEBRUARY 1, 1971 to DECEMBER 18, 1971 - cont'd.

TASK 1. SYSTEM DESIGN, DEVELOPMENT & EVALUATION

2. Review adequacy of subsystem evaluation data.
3. Determine effectiveness of subsystem functioning.
4. Determine effectiveness of interfaces between subsystems.
5. Identify deficiencies in functions and interfaces of the subsystems.
6. Revise model to alleviate detected deficiencies.

Procedures to evaluate objective:

1. Submit data on subsystem functions and interfaces to Consortium Board for conceptual testing.
2. Submit data on subsystem functions and interfaces to outside evaluation committee.

Actual Outcomes:

1. Performance contract was negotiated with Educational Testing Services to prepare a design for the evaluation of the training system model.
2. Evaluation system has been received and was reviewed prior to submission to Consortium Board.
3. Conference on evaluation system has been organized.

TASK 2. INTEGRATING SYSTEM

General Objective: To coordinate the efforts of all the agencies, individuals, and institutions in the functions of planning, programming, management, internal evaluation, and communication.

Criteria for Evaluation:

1. Evidence that the training consortium has been established and its operation is in progress.
2. Evidence that direction and guidance to member agencies have been effective in meeting their requirements.

3. Evidence that evaluation of the effectiveness of the consortium training activities is in operation.

4. Evidence that the communication channels established are meeting the needs of the consortium members and USOE.

Actual Outcomes:

1. The consortium was established, and activities assigned and funded. Coordination between agencies has been accomplished, activities have been monitored, and products reviewed. During this time period, although there were delays in securing approvals for the initiation of subcontracts, there were no serious breakdowns, slowdowns, or misdirected efforts.

2. A series of coordination meetings was held July 1 through August 20, 1971 to take up a variety of functions under the integrating system. (See Appendix O.)

Objective 2.1: To plan and program the establishment and operation of the D,D&E Consortium.

PLANNING AND PROGRAMMING

Procedures to attain objective:

1. Determine the global goals and objectives of the consortium.
2. Allocate priorities to consortium objectives.
3. Specify program accomplishments over the four-year life of the consortium.
4. Allocate funds in accordance with priorities established for consortium activities over the four-year funding period.
5. Set up a control system to determine the extent of progress in consortium activities.
6. Provide information to the USOE using special formats as required.
7. Revise program plans based on additional RDD&E information and on changes in guidelines.

Procedures to evaluate objective:

1. Evidence that D,D&E Consortium has been established and program plans have been developed.

TASK 2. INTEGRATING SYSTEM

2. Evidence that the consortium's program planning has been completed and that activities included in the plan are proceeding on schedule.

Actual Outcomes:

1. Global objectives have been established and submitted to USOE (see Design Report, Dec. 15, 1970, Vol.I, page 2.3).
2. A TTT chart of consortium activities for the four-year funding period was developed and presented in the proposal. (See Appendix A.)
3. All consortium activities scheduled in the TTT chart cited above, for development during the current funding period, are being accomplished.
4. A budget was developed specifying cost of consortium activities for the period Feb. 1, 1971 through Aug. 31, 1974.
5. Contracts negotiated with agencies and individuals specify dates for accomplishment of consortium activities. Failure to accomplish activities by the specified date provides information on which to base corrective action.
6. Progress reports of consortium activities were submitted to USOE on March 18, 1971 and June 18, 1971, and a Preliminary Final Report on October 11, 1971. Contracts for services with developmental agencies were submitted for USOE approval.
7. New guidelines regarding budget and consortium activities were received from the Office of Education. Program plans were revised in accordance with these guidelines. Results of activity revisions are presented in Section IV.

Objective 2.2: To establish a management system to organize, assign, coordinate, and monitor the activities necessary to carry out program plans. MANAGEMENT

Procedures to attain objective:

1. Establish and organize the consortium in such a way that objectives will be accomplished according to established priorities.
2. Delineate the goals, objectives and priorities of each component system.

3. Establish and maintain the various component systems of the consortium.

4. Determine the organizational structure of each system.

5. Staff each system with personnel having the required professional and technical skills to accomplish its special functions.

6. Establish budget allocations for each system.

7. Coordinate activities of consortium agencies and individuals.

8. Differentiate the functions among systems and clarify roles as necessary to minimize conflict and redundancy of effort.

9. Maintain a continuing review of consortium operations in order to modify initial plans as required to meet program goals.

Procedures to evaluate objective:

1. Evidence that the current consortium organization is meeting the goals, objectives, and priorities established in program plans.

2. Evidence that the various systems of the consortium have been established and are carrying out their assigned functions.

3. Evidence that the various systems have been staffed with the necessary qualified professional and technical personnel.

4. Evidence that the funds have been budgeted to support the development and operation of each system.

5. Evidence that coordination between consortium agencies and individuals is satisfactorily meeting their requirements.

6. Evidence that conflicts and redundancy of effort among systems are minimal.

7. Evidence that consortium operations are being reviewed and modified as necessary to meet program goals.

Actual Outcomes:

1. Present consortium members are all actively involved in developing materials or

operating various systems to further the consortium program. The desire to provide inservice training for Laboratory employees has resulted in our making arrangements with two new institutions, Contra Costa College in Richmond, and Merritt College in Oakland, California. The original plan was that Cañada College would present Continuing Education courses in D,D&E for Laboratory employees at the Paraprofessional Level; however, the California State Department of Education Code, Title V, prevents one junior college district from conducting courses within another district. As a result, new operational arrangements were required to provide inservice training in consortium courses for Laboratory employees. Arrangements have been concluded with Merritt College, and two consortium courses are being presented on Laboratory premises. These courses are: Communication Skills, and Information/Data Collection and Organization.

2. All tasks, with the scheduled exception of Implementation Packaging and Dissemination, have been established and are functioning on schedule according to design specifications.

3. Coordination meetings were held with all consortium members to plan, design, develop, and implement the systems required to accomplish the objectives of the program plans. These meetings resulted in the negotiation of contracts with developmental agencies and individuals specifying the activities to be accomplished, their schedule of accomplishment, and the cost.

Objective 2.3: To establish criteria for measuring the quality of outcomes from program plans and expected outcomes.

EVALUATION

Procedures to attain objective:

1. Determine the array of measures of consortium performance that are most reflective of its effectiveness in carrying out program plans.

2. Specify the measures necessary to each system's internal control purposes and those which should be reported periodically to the Integrating System.

3. Review and evaluate reports from each system for purposes of making changes in consortium plans or operations if necessary.

Procedures to evaluate objective:

1. Evidence that consortium activities are being accomplished and satisfy the contract

or program specifications.

2. Evidence that information necessary to each system's internal control is reported periodically to the Integrating System.
3. Evidence that reports from systems have been considered in making changes in consortium plans or operations.

Actual Outcomes:

1. Criteria for consortium performance were specified in the Design Report, Dec. 15, 1970, Vols.I and II (see specific system for full description). Consortium performance to date has met or exceeded the expectations projected in the Consortium Report.
2. Information on consortium activities has been transmitted on a daily, weekly, and monthly basis through memoranda, telephone conversations, on-site visits, conferences, seminars, and discussions between personnel. Consortium developers submit monthly progress reports on progress of activities, problem areas, and special requirements.
3. Reports from various systems have been received and consortium operations modified to achieve objectives specified in program plans. The necessity to involve additional paraprofessional training institutions resulted from the inability of Cañada College to satisfy inservice training needs outside their own college district. (See Task 4 for more complete discussion.)

Objective 2.4: To establish procedures which direct the flow of necessary information into the Integrating System so that consortium activities can be effectively managed.

COMMUNICATION

Procedures to attain objective:

1. Determine the interactions and information exchange required among the systems and activities within a system.
2. Establish controls to insure that information needs are met with respect to content and timeliness.
3. Establish communication procedures to inform consortium management of problems that occur.
4. Prepare reports on the training consortium activities in accordance with USOE requirements.
5. Prepare reports or publications intended to provide familiarization with the training consortium program.

TASK 2. INTEGRATING SYSTEM

Procedures to evaluate objective:

1. Evidence that the interactions and information required by the various systems have been accomplished.

2. Evidence that information requirements of consortium members have been satisfied.

3. Evidence that consortium management receives information on problems that occur.

4. Evidence that reports on consortium activities have been submitted to satisfy USOE requirements.

5. Evidence that reports or publications to provide familiarization with the consortium program have been prepared and disseminated.

Actual outcomes:

1. The Integrating System has been established and has maintained communication channels with consortium agencies and personnel through telephone contact, memoranda, on-site visits, conferences, seminars, discussions, and formal meetings. Reports on activities are submitted almost daily by telephone and personal contact; monthly progress reports on activities, problem areas, and special requirements are submitted by all consortium personnel. Consortium agencies have submitted statements of their satisfaction with the content and timeliness of the Integrating System's response to requests for information. For examples, see Appendix S.

2. Progress reports of consortium activities were submitted to USOE on March 18 and June 18, 1971. A preliminary final report was submitted on October 11, 1971.

3. The functions of the consortium have been communicated through a series of meetings with interested agencies, institutions, and local education personnel. Publicity brochures have been prepared and distributed describing the programs available at SFSC and Cañada College.

4. Employees of various developmental agencies (FWL, AIR, SRI) have been informed of the consortium training program. Their interest in the program was determined and approaches initiated to satisfy these interests.

TASK 3. TRAINING DEVELOPMENT

General Objective: To begin development of a functional competence training program, including planning and programming of training systems, course development, engineered internship development, and staff development.

Criteria for Evaluation:

1. Completion of designs and scheduling of courses for prototype testing during fall 1971.
2. Preparation of prototype materials for Planning and Design Course, EP and PP; Information/Data Collection and Organization Course, EP and PP; Communication Skills Course, PP.
3. Completion of design for engineered internship and establishment of procedures for implementation.
4. Planning for preservice training and orientation of instructors conducting prototype testing of the above courses.

Actual Outcomes:

1. Design and scheduling of courses completed. See Figure 4 for schedule.
2. Preparation of prototype materials for Planning and Design Course is 80% complete at the EP level. Translation to the PP level is also 60% complete.[13]

   Information/Data Collection and Organization Course is 100% complete at both EP and PP levels.[13]

   Communication Skills Course is 100% complete at the PP level. Translation at EP level scheduled for 1971-72.[13]

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[13] All course materials reproduced to date will accompany this report

FEBRUARY 1, 1971 to DECEMBER 18, 1971 - cont'd.

TASK 3. TRAINING DEVELOPMENT

3. Design for the engineered internship is completed and procedures for implementation have been established. See Appendices D and K for engineered internship program at Cañada and San Francisco State Colleges.

4. Procedures for orientation and preservice training of instructors have been developed.

Objective 3.1: To specify and implement a plan for developing the training system and to detail content and competencies for courses to be tested in fall 1971.

PLANNING AND PROGRAMMING

Procedures to attain objective:

1. Select course development teams to include one representative of a development agency, a college instructor and an independent evaluator.

2. Develop performance contracts with agency and consultants for course development.

3. Review overall program design for each of the eight courses.

4. Compare course content with task analysis, retrospective analysis, and time sampling data.

5. Review and adjust course content in relation to course objectives and competencies.

6. Review and adjust levels of proficiency assigned to competencies.

7. Assign the development of competencies to specific modules within courses.

Procedure to evaluate objective: Consensus agreement of development teams, project director and principal investigator regarding the efficacy of the plan for developing the training system and the specification of the course content and competencies.

Actual Outcomes:

1. Course development teams were selected.
2. Contract specifications to include scope of work, production schedule, and cost were developed and negotiated with consortium participants and outside consultants. See Appendix E for example of developmental contract.
3. Course designs for all eight courses have been reviewed and revised as necessary.
4. Course competencies were reviewed and level of competencies assigned to specific modules. Minor revisions were made pending prototype testing of courses. 14

Objective 3.2: To develop prototype forms of instructional materials for Planning and Design, Levels EP and PP; Information/Data Collection and Organization, EP and PP; Communication Skills, PP level.

Procedures to attain objective:

1. Write detailed process and product objectives for each module within each course.
2. Search and select materials for adoption and adaptation that will support the informational background and skills needed in the development of the competencies assigned to the modules within each course.
3. Organize existing material, produce new material where voids exist, devise functional context activities that produce specified proficiency levels of competencies assigned to the modules, and produce first draft of materials.
4. Submit materials for review and critique.
5. Revise material for preliminary testing.
6. Conduct preliminary test of materials with small number of students (3-6)
7. Revise materials as result of preliminary testing.

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14 Required competencies and attained skills will be reviewed by employees in Engineered Internship. See 3.3

FIGURE 4

TRAINING DEVELOPMENT AND IMPLEMENTATION

	9/71-1/72	2/72-6/72	7/72-8/72	9/72-1/73	2/73-6/73	7/73-8/73	9/73-1/74	2/74-6/74	7/74-8/74
Analysis Course EP		Develop Prototype Form[1]	→	Test Prototype Form	Revise and Develop Field Test Form[2]	→	Test Field Test Form	Revise and Develop Operational Form[3]	→
Planning & Design Course EP	Test Prototype Form	Revise and Develop Field Test Form	→	Test Field Test Form	Revise and Develop Operational Form	→	Test Operational Form	Revise and Develop Release Form[4]	→
Planning & Design Course PP	Test Prototype Form	Revise and Develop Field Test Form	→	Test Field Test Form	Revise and Develop Operational Form	→	Test Operational Form	Revise and Develop Release Form	→
Developmental Engineering Course EP	Develop Prototype Form	Test Prototype Form	←	Revise and Develop Field Test Form	Test Field Test Form	←	Revise and Develop Operational Form	Test Operational Form	Revise and Develop Release Form
Developmental Engineering Course PP	Develop Prototype Form	Test Prototype Form	←	Revise and Develop Field Test Form	Test Field Test Form	←	Revise and Develop Operational Form	Test Operational Form	Revise and Develop Release Form
Evaluation Course EP	Develop Prototype Form	Test Prototype Form	←	Revise and Develop Field Test Form	Test Field Test Form	←	Revise and Develop Operational Form	Test Operational Form	Revise and Develop Release Form
Evaluation Course PP	Develop Prototype Form	Test Prototype Form	←	Revise and Develop Field Test Form	Test Field Test Form	←	Revise and Develop Operational Form	Test Operational Form	Revise and Develop Release Form
Dissemination and Marketing Course EP	Develop Prototype Form	→	→	Test Prototype Form	Revise and Develop Field Test Form	→	Test Field Test Form	Revise and Develop Operational Form	→

	9/71-1/72	2/72-6/72	7/72-8/72	9/72-1/73	2/73-6/73	7/73-8/73	9/73-1/74	2/74-6/74	7/74-8/74
Information/Data Collection & Organization Course EP	Test Prototype Form	Revise and Develop Field Test Form	→	Test Field Test Form	Revise and Develop Operational Form	→	Test Operational Form	Revise and Develop Release Form	→
Information/Data Collection & Organization Course PP	Test Prototype Form	Revise and Develop Field Test Form	→	Test Field Test Form	Revise and Develop Operational Form	→	Test Operational Form	Revise and Develop Release Form	→
Communication Skills Course EP	Develop Prototype Form	Test Prototype Form	←	Revise and Develop Field Test Form	Test Field Test Form	←	Revise and Develop Operational Form	Test Operational Form	Revise and Develop Release Form
Communication Skills Course PP	Test Prototype Form	Revise and Develop Field Test Form	→	Test Field Test Form	Revise and Develop Operational Form	→	Test Operational Form	Revise and Develop Release Form	→
Management Course EP		Develop Proto. Form		Test Prototype Form	Revise and Develop Field Test Form	→	Test Field Test Form	Revise and Develop Operational Form	→
Information/Data Collection & Organization Course AP			Develop Proto. Form	→	Test Prototype Form	Revise & Develop Field Test Form	Test Field Test Form	Revise and Develop Operational Form	→
Communication Skills Course AP			Develop Proto. Form	→	Test Prototype Form	Revise & Develop Field Test Form	Test Field Test Form	Revise and Develop Operational Form	→
Management Course AP				Develop Prototype Form	Test Prototype Form	Revise & Develop Field Test Form	Test Field Test Form	Revise and Develop Operational Form	→

[1] Prototype Form - First form of product resulting in decision that it is sufficiently well defined and developed to merit testing.

[2] Field Test Form - Revision based upon prototype testing, tested under real conditions with the involvement of the developer.

[3] Operational Form - Revision based on field test results. This form is tested without the participation of the developer.

[4] Release Form - Revision based upon feedback from operational testing. Product readied for distribution on a large-scale basis.

TASK 3. TRAINING DEVELOPMENT

8. Prototype test materials.

Procedures to evaluate objective:

1. Determine the congruence between the sample modules produced and the training characteristics specified in Section F Volume 2 of project proposal. (See Report in Appendix C.)
2. Conduct small scale prototype testing of sample modules with AA and MA level students to verify reading levels, clarity of instructions, appropriateness of activities and time requirements. (See Report in Appendix J.)
3. Circulate modules among course developers for evaluation and critical comment.
4. Revise modules as result of preliminary testing and review and accept for prototype testing.

Actual Outcomes:

1. Information/Data Collection and Organization Course are complete for both EP and PP levels.
2. Communication Skills Course. Modules 1 and 4 are complete, Modules 1 and 3 are 60% complete. The modules not yet completed are the result of a contractor being over-committed and unable to meet time schedule. Work is now in progress. Since the modules are not sequential, instruction will begin on Modules 2 and 4. Modules 1 and 3 will be completed in time to follow Modules 2 and 4.
3. Planning and Design Course. At EP level, Modules 1 through 5 are complete. Modules 6 and 7 have not been started. Modules 1 through 3 have been translated for use at the PP level. The reason that this course has not been completed on schedule is due to the unavailability of published material dealing with the planning and designing of educational solutions. Most of the informational materials available were in the form of reports of completed projects--what had happened.

Materials were not operationally oriented nor instructive to students on how to go about planning and designing an educational product. Most developmental agencies contacted were unable to supply needed raw materials necessary to give students "in context" practice on competencies. Therefore little could be adapted, resulting in the necessity for the developers to generate a large amount of material and exercises. To facilitate the completion of this course, a contract has been negotiated with AIR to develop Module 6.

4. Contracts have been negotiated with AIR and SFSC to develop Module 1 of the Developmental Engineering and Evaluation courses at the EP level; a contract has been negotiated with TIS and SFSC to translate the Communication Skills course from the PP to EP level.

Objective 3.3: To design, develop, and test a program to provide extended and intensive work experience opportunities to apply the competencies acquired.

ENGINEERED INTERNSHIP DEVELOPMENT

Procedures to attain objective:

1. Contract with key personnel in participating colleges to develop engineered internship design.
2. Meet with consortium members to discuss the concept and objectives of the engineered internship.
3. Produce preliminary designs by participating institutions.
4. Review and critique preliminary designs.
5. Produce revised design.

Procedures to evaluate objective:

1. Compare the design with the original conception (in Proposal) of the function and purpose of the engineered internship.

FEBRUARY 1, 1971 to DECEMBER 18, 1971 - cont'd.

TASK 3. TRAINING DEVELOPMENT

2. Compare the design with the regulations and requirements of the participating institutions and agencies.
3. Competencies required and skills actually attained will be reviewed by employers as part of engineered internship arrangement.

Actual Outcome: Designs for the engineered internship were developed and accepted for implementation at the EP and PP level. (See Appendices D & K.)

Objective 3.4: To develop a plan for staff training that will be implemented prior to the beginning of instruction and during the prototype testing.

STAFF DEVELOPMENT

Procedures to attain objective:

1. Selected consortium members review the critical teacher-learning characteristics of the training design and relate them to the instructional circumstances at the participating institutions.
2. Prepare a concept paper including outline of activities to be presented to consortium members for review.

Procedures to evaluate objective:

1. Obtain staff reactions to the plan for staff training.
2. Obtain project director's reaction to proposed staff development plan.

Actual Outcomes:

1. Individual meetings were held with assigned instructors to explore methods for establishing a learning resource center.
2. Discussions were held with instructors regarding a teaching-learning environment and instructional strategies.

3. Tentative plan for staff development was produced (See Appendix K.)

TASK 4. TRAINING IMPLEMENTATION

General Objective: To develop a plan for the implementation of the D,D&E Training System including paraprofessional programs, entry-professional programs, internship programs, continuing education programs, staff training programs, and employer recruitment.

Criteria for evaluation:

1. Existence of approved D,D&E programs at EP and PP levels in accredited institutions.
2. D,D&E programs in operation with full quotas of students.
3. Engineered internships functioning for all students in the programs.
4. Evidence of qualified staff trained as instructional managers.

Actual outcomes:

1. A plan for paraprofessional program, including internship programs, was compiled by Cañada College.
2. A plan for entry-professional program, including internship programs, was completed by San Francisco State College.
3. Negotiation for continuing education programs has been completed.
4. Plans for staff training and employer recruitment have been completed.

Objective 4.1: To develop a plan for implementing the training system at the paraprofessional level.

PP PROGRAM PLANNING

Procedures to attain objective:

1. Meet with division chairmen, deans of instruction, and committee on instruction of Cañada College to introduce D,D&E program and to obtain approval for implementing programs.

FEBRUARY 1, 1971 to DECEMBER 18, 1971 - cont'd.

TASK 4. TRAINING IMPLEMENTATION

2. Select instructors for paraprofessional courses.

Actual outcomes:

1. Design was completed for implementation of paraprofessional programs (see Appendix E).

2. Board of Trustees approval was obtained.

3. Courses were included in college course listings for fall, 1971.

4. Three instructors were assigned to the paraprofessional programs (see Appendix F for instructors' vitae.)

5. An additional opportunity to meet the consortium goal for training minority group members was made possible when the Concentrated Employment Program of Richmond, California, offered to support eight of their junior college students as intern employees in FWL for D,D&E training. Negotiations for junior college credit for these students were completed.

6. Negotiation to provide credit for inservice training of Laboratory employees was initiated. Merritt College, Oakland, has approved two consortium courses, Communication Skills and Information/Data Collection and Organization, to be offered on Laboratory premises for interested employees.

7. Implementation negotiations have been initiated for presentation of D,D&E courses at Contra Costa College and Merritt College for the spring semester, 1972.

Objective 4.2: To develop a plan for implementing the training program at the entry-professional level.

EP PROGRAM PLANNING

Procedures to attain objective:

FEBRUARY 1, 1971 to DECEMBER 18, 1971 - cont'd.

TASK 7. EVALUATION SYSTEM

Actual outcomes:

1. Contracts were negotiated for instrument preparation for all courses under development.

2. The following modular evaluation devices were prepared:
   Data/Information Collection & Organization course, EP and PP levels, 100% completed, including an exemplary evaluation instrument for Modules 2 and 5, and ordinary instruments for Modules 1, 3, 4 and 6.

   Communication Skills course at PP level, 80% completed, including an exemplary evaluation instrument for Module 1.

   Planning & Design course at EP and PP levels, 50% completed.

3. Instruments for the evaluation of interns were completed for prototype testing.

Objective 7.5: To design and implement a budget monitoring and accounting system.

BUDGET ANALYSIS

Procedures to attain objective:

1. Relate the tasks identified by the TTT chart in the Design Report to the Laboratory cost codes.

2. Incorporate this project in the established Laboratory budgeting and accounting procedures.

Actual Outcomes:

1. Cost codes were established which are compatible with the on-going Laboratory accounting procedures.

2. Budget and accounting procedures for this project are being administered by the Laboratory business office. Print-outs of current accumulated expenditures and financial plan are received monthly.

Procedures to attain objective:

1. Review design characteristics of the evaluation system as described in the proposal.

2. Negotiation of performance contract with Educational Testing Service to produce a design for an evaluation system for the D,D&E training program.

3. Hold meetings between project director and ETS to discuss alternative design details.

4. Review prototype evaluation system and requisite data recording forms for prototype testing and make decision regarding approval.

Actual outcomes:

1. Performance contract was negotiated with ETS and a preliminary design for the evaluation system, including the necessary forms, was received.

2. Discussion of the evaluation system and necessary forms was held with consortium management, ETS, developers, and instructors.

Objective 7.2: To begin preparation of evaluation instruments to test students and competencies for the courses under development, and to evaluate interns. INSTRUMENT DEVELOPMENT

Procedures to attain objective:

1. Confer with consortium members and consultants for the preparation of modular evaluation instruments and intern evaluation instruments.

2. Decide which modules are to be tested by exemplary evaluation instruments and which by ordinary instruments.

3. Negotiate contracts to develop required prototype evaluation instruments.

4. Review evaluation instruments developed under contract.

5. Prototype test approved instruments.

FEBRUARY 1, 1971 to DECEMBER 18, 1971 - cont'd.

TASK 6. EMPLOYMENT SYSTEM

Actual Outcome: All members of the consortium have indicated their willingness to provide both brief and long-term demonstrations of D,D&E activities to students.

TASK 7. EVALUATION SYSTEM

General Objective: To plan, design, develop, and test an evaluation system for the D,D&E training program, including the initiation of instrumentation for evaluating student progress and systems effectiveness.

Criteria for evaluation:

1. Review of the evaluation plan by Consortium Board.
2. Draft copies of student progress and systems evaluation instruments submitted according to contract dates.
3. Compatibility of the budget monitoring and accounting system with current Laboratory accounting practices.

Actual outcomes:

1. The plan for overall evaluation of the D,D&E training program was completed.
2. Evaluation system instruments are under development by ETS.
3. Prototype instruments for evaluating internship progress were completed.
4. A budgeting, monitoring, and accounting system for the D,D&E training program was designed and is in operation.

Objective 7.1: To plan and design an evaluation system for the functional competence training program.

EVALUATION SYSTEM PLANNING & DESIGN

Procedures to attain objective:

1. Determine characteristics and skills of students needing engineered internships.
2. Determine number of interns needed by agencies.
3. Obtain information on type of intern desired, competencies required, supervision, pay, and number of hours's work available.
4. Select most appropriate applicants and remit names to agencies for employment.

Procedures to evaluate objective:

1. Increase the number of internship employment opportunities available to students.
2. Place students in internships.
3. Obtain and review evidence of employer support of students' engineered internship work plans.

Actual Outcome: All students in the EP program were provided with engineered internships. More work is required at the PP level; at present all PP students have been provided with internships, although most of those at Cañada College are voluntary. This is unsatisfactory for consortium purposes; a concerted effort will be initiated in the fall to interest employers in providing engineered internships for the Cañada students. All seven students from Contra Costa College wre provided with internships.

Objective 6.4: To secure demonstration sites of D,D&E activities for students in the consortium program. Agency involvement may be a brief demonstration or a long-term involvement.

DEMONSTRATION SITES

Procedure to evaluate objective: Secure participation by consortium agencies and other D,D&E agencies in the provision of demonstration sites, in sufficient numbers to meet the program's objectives.

FEBRUARY 1, 1971 to DECEMBER 18, 1971 - cont'd.

TASK 6. EMPLOYMENT SYSTEM

2. Consult with employers on their competency requirements and the rôle of consortium program in providing these competencies.

3. Design and implement plan to support consortium program in coordination with employers.

4. Revise plan as a result of operational experiences and employer feedback.

Procedures to evaluate objective:

1. Obtain and review evidence of plan's effectiveness in providing long-term employment for graduates.

2. Obtain and review evidence of plan's effectiveness in providing continuing education for employees.

3. Obtain and review evidence of plan's effectiveness in providing engineered internship positions.

4. Obtain and review evidence of plan's effectiveness in providing demonstration sites for orientation and training of students.

Actual Outcomes:

1. Plans for continuing education of employees were readied for implementation.

2. Plans for providing engineered internship positions were readied for implementation.

3. Plans for providing demonstration sites are ready for implementation.

Objective 6.2: To develop and test a program which insures that students are provided with engineered internships.

INTERNSHIP EMPLOYMENT

Actual outcomes:

1. Responsibilities of coordinators were specified.
2. Coordinators were selected at institutions.
3. Contracts were negotiated with Dr. George Hallowitz as coordinator at San Francisco State College and with Dr. Robert Bennett at San Mateo Community College District.
4. The persons named above are functioning as coordinators at their respective institutions.

TASK 6. EMPLOYMENT SYSTEM

General Objective : To develop and test an effective system for soliciting the support of employing D,D&E and other training agencies in cooperating with the consortium program through providing long-term employment for graduates, providing continuing education for employees, providing engineered internship positions, and serving as demonstration sites for orientation and training of students.

Criterion for Evaluation: Participation by employing agencies in the stated objectives of the Employment System, the continuance of participation, and increase in the number of agencies involved.

Actual Outcome: All consortium members are presently supporting one or more of these objectives. In addition, the following California agencies are also providing some measure of support: Berkeley Public School System, Sullivan Associates, Menlo Park, and Concentrated Employment Program, Richmond.

Objective 6.1: To plan and design an effective system for soliciting the support of employing D,D&E and other training agencies through long-term employment for graduates, continuing education for employees, engineered internship positions, and demonstration sites for orientation and training of students. EMP. SYSTEM PLANNING AND DESIGN

Procedures to attain objective:

1. Conduct continuing survey of D,D&E employers.

FEBRUARY 1, 1971 to DECEMBER 18, 1971 - cont'd.

TASK 5. PERSONNEL SYSTEM

3. Six students are enrolled in Continuing Education courses through Merritt College. These courses are being taught at the Far West Laboratory and provide inservice training to employees requiring additional D,D&E skills. (See Appendix G.)

4. Six unemployed aerospace engineers are being retrained for D,D&E work at AIR using consortium produced materials. (This program is described in Appendix L.) The adaptability of the functional competence training program permitted immediate response to this new requirement.

Objective 5.6: To develop and staff a personnel administration system to effect liaison services between consortium management, training institutions, training staff, trainees, agencies providing on-the-job training, evaluators, and agencies to be served.

PERSONNEL ADMINISTRATION

Procedures to attain objective:

1. Review and specify the functions of the personnel administration system.

2. Determine scope of responsibilities for coordinators at institutions.

3. Select appropriate coordinators at San Francisco State College and San Mateo Community College District.

4. Negotiate scope-of-work contracts with coordinators.

Procedures to evaluate objectives:

1. Review of personnel administration system.

2. Review comprehensiveness and appropriateness of scope-of-work contracts.

3. Review adequacy of coordinators' functioning at respective institutions.

4. Initiate prototype testing of systems.

Actual outcomes: Personnel systems for entry- and paraprofessional levels have been received, reviewed and approved for prototype testing.

1. Systems have been approved for prototype testing.
2. The functions, operations, and relationships of the personnel system have been planned.

Objective 5.2: To recruit and orient 15 entry-professional and 13 paraprofessional potential applicants into the consortium programs.

STUDENT RECRUITMENT AND ORIENTATION

Procedures to attain objectives:

1. Location of potential applicants.
2. Identification of potential applicants with special emphasis on minority persons.
3. Specify desired background characteristics.
4. Communicate program opportunities to potential applicants through briefings, interest surveys, personal discussion, letters and publicity.
5. Provide admission forms to applicants.

Procedure to evaluate objective: See evidence that the required numbers of students have been identified, recruited, and enrolled in scheduled courses for fall, 1971.

Actual outcomes:

1. A full quota of 25 students is enrolled in the SFSC program. This is 12 more than were estimated in the Consortium Proposal. (See Appendix N.)
2. A total of 35 students is enrolled in courses at Cañada College. Not all are taking all three of the courses being offered. Seven students are taking two D,D&E courses through Contra Costa College. (See Appendix G.)

FEBRUARY 1, 1971 to DECEMBER 18, 1971 - cont'd.

TASK 5. PERSONNEL SYSTEM

General Objective: To develop a personnel system that will provide for student recruitment and orientation, guidance and counselling, placement and follow-up.

Criterion for evaluation: Evidence of effectiveness of the system in meeting the needs of the student in his attempts to integrate his learning experiences in the training program with his personal needs, goals, values, abilities, and constraints.

Actual outcomes: Personnel systems to accomplish the objectives have been developed and are being prototype tested. Recruitment and placement have been completed.

Objective 5.1: To plan and design the detailed descriptions of the functions, operations, and relationships of the personnel system. PLANNING AND DESIGN

Procedures to attain objectives:

1. Review system functions described in the Design Report, Dec. 15, 1970.
2. Hold discussions with consultants from participating training institutions, employers, and personnel specialists to devise ideas on system functions and operations.
3. Specify scope of work in coordination with developers.
4. Negotiate contracts specifying funding and production schedule to develop systems at the entry- and paraprofessional levels.

Procedures to evaluate objectives:

1. Review and criticize systems developed for entry- and paraprofessional levels.
2. Revise systems.
3. Approve systems for prototype testing.

2. San Francisco State College personnel must have 28 students enrolled to hold continuing education courses. Therefore, final plans for implementation are in abeyance pending sufficient enrollment. More flexible arrangements are being explored, since the requirement for twenty-eight students precludes meeting the needs of the average sized development agency.

3. Canada College is unable to offer courses at FWL because of state regulations preventing junior colleges from teaching in another junior college district. Merritt College in the local junior college district is giving credit for D,D&E courses at FWL for Laboratory employees. This arrangement will satisfy the inservice training requirements of employees at the Laboratory and other agencies in the East Bay region. Contra Costa College is crediting D,D&E courses for trainees from the Richmond CEP program. (See Cooperating Agencies in Section IV.)

Objective 4.5: To develop a plan for implementing an orientation and staff training program.

STAFF TRAINING PROG. PLANNING

See discussion in the first portion of Objective 3.4, which this objective parallels.

Procedures to attain objective:

1. Hold a series of meetings with prospective employers to describe the competencies students will acquire through participation in the consortium program, and discuss appropriate work opportunities for extension and refinement of students' D,D&E competencies.

2. Solicit prospective employers' cooperation in the program.

3. Obtain commitments from employers on number of employees who might benefit from the program, names of prospective students, extent of support available, and competencies deemed most desirable.

Criterion for evaluation: Successful recruitment of employers for students registering for internships.

Actual Outcomes:

1. All students registered for internships were assigned to employers.

2. Participating California organizations include Stanford Research Institute, Palo Alto; American Institutes for Research, Palo Alto; Educational Testing Service, Berkeley; Longfellow Elementary School, Berkeley; Sullivan Associates, Menlo Park; and Far West Laboratory for Educational Research and Development, Berkeley.

TASK 4. TRAINING IMPLEMENTATION

2. Meeting with potential students to explain the internship program.

Actual outcomes:

1. Design was completed for implementation of internship programs at Cañada College and San Francisco State College (included in reports in Appendices D & K)

2. Internship positions were located for seven students at Contra Costa College, twenty-three students at Cañada College and twenty-five students at San Francisco State College.

3. Three counselor/instructors were assigned for supervision of the Engineered Internship programs at Cañada College.

4. Three instructors were assigned for supervision of the Engineered Internship programs at San Francisco State College.

Objective 4.4: to develop a program plan for continuing education at the entry-professional and paraprofessional levels. CONTINUING ED. PROG. PLANNING

Procedures to attain objective:

1. Survey of employee interest in D,D&E courses among consortium agencies.

2. Exploratory meetings with Cañada College, San Francisco State College, and Merritt College, to determine feasibility of offering D,D&E instruction on a continuing education basis.

Criterion for evaluation: Adequacy of a plan to fulfill continuing education requirements as agreed upon by member institutions and agencies.

Actual outcomes:

1. Survey of employee interest was conducted at FWL and results obtained (see Appendix B). Laboratory employees indicated a substantial interest in consortium courses and the engineered internship.

1. Meet with college president, dean of school of education, chairman and faculty members of Interdisciplinary Studies in Education Department, chairman and faculty members of Educational Administration Department, graduate committee, and college business manager to obtain approval for implementing programs.

2. Select counselors and instructors for entry-professional courses.

3. Arrange for time when instructional managers will be available to students.

4. Arrange for learning laboratory where materials and equipment will be available to students.

Actual outcomes:

1. Design for implementation of entry-professional programs was completed (see Appendix I).

2. Report was received on activities related to securing college approval (included in Appendix H).

3. College approval was obtained and two courses are being offered at San Francisco State College in fall, 1971.

4. Three instructors were assigned to the entry-professional programs (see Appendix M for instructors' vitae).

5. Preliminary steps toward establishing learning laboratories at the various institutions were initiated. A model learning laboratory available to students at the PP and EP levels has been established at the Laboratory.

Objective 4.3: To develop a plan for implementing the internship program at the entry-professional and paraprofessional levels.

INTERNSHIP PROGRAM PLANNING

Procedures to attain objective:

1. Meeting with college personnel and potential employers to discuss procedures for implementing the internship programs.

DECEMBER 19, 1971 to DECEMBER 31, 1972

DECEMBER 19, 1971 to DECEMBER 31, 1972

TASK 1. SYSTEM DESIGN, DEVELOPMENT AND EVALUATION

General Objective: To design, develop, and evaluate a D,D&E functional competence training system model.

Criterion for Evaluation: Evidence that the D,D&E functional competence training system model has been developed and is effectively meeting the requirements for training and upgrading personnel for educational D,D&E.

Objective 1.3: To continue development of a functional competence training system model for training and upgrading personnel for educational D,D&E.

SYSTEM DEVELOPMENT

Procedures to attain objective:

1. Continue study of a need assessment base. This includes a review of existing information regarding national manpower projections and a survey of the Far West regional requirements perceived training needs, and number and kind of potential apprentice or job placement positions.

2. Continue re-examination of priorities regarding professional levels, functional context, and institutional job settings to determine levels of training required.

3. Continue review of job and task analysis data, especially as new data becomes available.

4. Continue specification of job competencies.

5. Continue specification and examination of training requirements.

6. Continue relating design of training to institutional constraints and consortium resources.

7. Continue development of supporting systems.

8. Continue definition and delineation of content.

9. Initiate design of Ph.D. program in D,D&E.

Procedure to evaluate objective: Examine logical consistency and sufficiency of the outcomes of the eight steps described above.

Objective 1.4: To continue to evaluate the effectiveness of a functional competence training system model for training and upgrading personnel in educational D,D&E.

SYSTEM EVALUATION

Procedures to attain objective:

1. Continue to review the overall approach to systems evaluation as described in the proposal.

2. Continue to review adequacy of subsystem evaluation data.

3. Continue to determine effectiveness of subsystem functioning.

4. Continue to determine effectiveness of interfaces between subsystems.

5. Continue to identify deficiencies in functions and interfaces of the subsystems.

6. Continue to revise model to alleviate detected deficiences.

Procedures to evaluate objective:

1. Submit data on subsystem functions and interfaces to Consortium Board for conceptual testing.

2. Submit data on subsystem functions and interfaces to outside evaluation committee.

3. Secure other recommendations of outside evaluation committee regarding improvement of evaluation procedures.

TASK 2. INTEGRATING SYSTEM

General Objective: To maintain a management system to organize, assign, coordinate, and monitor the activities necessary to carry out program plans; to provide for internal evaluation and communication.

DECEMBER 19, 1971 to DECEMBER 31, 1972 - cont'd.

TASK 2. INTEGRATING SYSTEM

Procedures to attain objective:

1. Provide management for the consortium in a manner that attains goals and objectives, and implements priorities established in program plans.
2. Continue to monitor the various other systems of the consortium and coordinate their special functions.
3. Maintain continued evaluation of the effectiveness of the training consortium with respect to its program goals and objectives, its training, and in meeting the needs of the D,D&E personnel in the field.
4. Maintain a communication system which directs the flow of necessary information into the Integrating System so that consortium activities can be effectively managed and adjusted.

Criteria for evaluation:

1. Evidence that the training consortium is meeting the goals, objectives, and priorities established in program plans.
2. Evidence that the various systems maintain staffs with the necessary qualified professional and technical personnel.
3. Evidence that the consortium operations are continually being reviewed and modified as necessary to meet program goals.
4. Evidence of continuing evaluation of the effectivenesss of consortium training activities.
5. Evidence that the established communication channels are functioning and meeting the needs of the consortium members and USOE.

TASK 3. TRAINING DEVELOPMENT

General Objective: To continue development and refinement of the training program, including course development, engineered internship development, and staff development.

Criteria for evaluation:

1. Course material developed and prototype testing accomplished as indicated in Figure 4.
2. Satisfactory completion of prototype engineered internship as judged by student, instructor, and employing agency.
3. Positive instructor reaction to staff development activities and evidence of change in teaching strategies and student/teacher interaction and organizational procedures.

Objective 3.2: To assign development teams and conduct prototype and field tests of courses as indicated in Figure 4.

COURSE DEVELOPMENT

Procedures to attain objective:

1. Write detailed process and product objectives for each module within each course.
2. Search out and select materials for adoption and adaptation that will support the informational background and skills needed in the development of the competencies assigned to the modules within each course.
3. Organize existing material, produce new material where voids exist, devise functional context activities that produce specified proficiency levels of competencies assigned to the modules.
4. Prepare student and instructor material for prototype testing.
5. Develop evaluation strategy and instrument for testing.
6. Conduct prototype testing at Cañada College and SFSC, at EP and/or PP levels as appropriate. Other colleges may also be involved to satisfy existing training needs.
7. Revise course material and functional context experiences as indicated by evaluation of prototype testing.
8. Conduct main field testing.
9. Revise, based on findings of main field testing.
10. Develop operational test form for other sites.

DECEMBER 19, 1971 to DECEMBER 31, 1972 - cont'd.

TASK 3. TRAINING DEVELOPMENT

Objective 3.3: To continue development and testing of an engineered internship program that will provide extended and intensive opportunity through work experience to apply the competencies acquired.

ENGINEERED INTERNSHIP DEVELOPMENT

Procedures to attain objective:

1. Prototype test engineered internship program.
2. Solicit comments on engineered internship program from advisers, students, and employers.
3. Discuss comments with developers of program.
4. Revise program.
5. Continue testing until program satisfies design requirements and needs of advisors, students, and employers.

Objective 3.4: To conduct staff training that will implement the training characteristics of instructional experiences, selection and use of resources, management of learning and learner.

STAFF DEVELOPMENT

Procedures to attain objective:

1. Convene coordination meetings during the academic year for informal sharing of experiences, critique videotape recording of critical teaching/learning situations, viewing model teaching tapes and demonstrations, and using self-evaluation techniques (e.g., Flanders' Interaction Analysis).
2. Obtain student and instructor reactions on instructional staff performance.
3. Encourage instructional staff to revise instructional approaches to more effectively manage instructional needs of students.

4. Prototype test revised staff training.

TASK 4. TRAINING IMPLEMENTATION

General Objective: To implement the training system including paraprofessional programs, internship programs, continuing education program staff training program, and employer recruitment.

Criteria for evaluation:

1. Adherence to time schedule for testing of courses as indicated in Figure 4.
2. Enrollment of students in an institution and employment by an agency as interns.
3. Meeting of continuing education requests for on-site courses for inservice training.
4. Completion of staff training for instructors new to the program, and of continuing instructors as necessary.
5. Recruitment of sufficient employers to provide internships for all students enrolled in the program.

Objective 4.6: To provide continuing staff training for instructors, counselors, and employers to familiarize them with the total program operation and to develop problem solution procedures.

STAFF TRAINING

Procedures to attain objective:

1. Provide instructors, counselors, and employers with the material necessary to understanding of program operations.
2. Hold meetings and training sessions as needed and requested with instructors, counselors and/or employers.
3. Establish a communication system to assure free flow of current information regarding the program.

DECEMBER 19, 1971 to DECEMBER 31, 1972 - cont'd.

TASK 4. TRAINING IMPLEMENTATION

Objective 4.7: To continue recruiting of employers who will offer internship positions for students at paraprofessional and entry-professional levels.

EMPLOYER RECRUITMENT

Procedures to attain objective:

1. Contact likely development agencies and school districts to inform them about the D,D&E program and the engineered internship, and to solicit their support and involvement.

2. Solicit continued participation of consortium member agencies and institutions.

Objective 4.8: To orient the employing agency supervisors to the purposes of the internship program and procedures for beginning and continuing an internship placement in the agency.

SUPERVISOR ORIENTATION

Procedures to attain objective:

1. An instructor visit to each supervisor to review the competencies to be applied by the intern in relation to the work assignment.

2. An overview of the D,D&E training system, plus specific information on the internship program, presented by a consortium member for agencies unfamiliar with the system.

3. Orientation of the supervisors on the information requirements of the program and the use of evaluation materials.

Objectives 4.9 and 4.10: To implement the D,D&E training program at the paraprofessional and entry-professional levels in accredited institutions.

PP & EP PROGRAM OPERATIONS

Procedures to attain objectives:

1. Conduct courses as indicated in Figure 4.

2. Monitor internships. Professors assigned to monitoring for February 1971 are Hal Jonsson, C. Earl Miller and Joseph Ward at San Francisco State College, and Kenneth Kennedy, Bennett Kilpack and Jim Upton at Canada College.

3. Counsel students. Counselors for D,D&E students are Pat O'Brien at Cañada College and Lionel Olsen and Enoch Sawin at San Francisco State College.

Objective 4.11: To meet the continuing education needs of employees of development agencies.
CONT EP PROGRAM OPERATIONS

Procedures to attain objective:

1. Acquaint employers and agencies with existence of D,D&E program and its advantages in providing inservice training.

2. Determine employee and employer interest in competencies taught in the program.

3. Negotiate with appropriate college district for accreditation of courses.

4. Provide D,D&E courses as requested by development agencies either at institutions or on site.

5. Arrange for instructors and facilities for presentation of courses.

6. Register students and monitor program.

TASK 5. PERSONNEL SYSTEM

General Objective: To maintain a personnel system that will provide for student recruitment and orientation, guidance and counseling, placement and follow-up.

Criterion for evaluation: Evidence of effectiveness of the system in meeting the needs of the student in his attempts to integrate his learning experiences in the training program with his personal needs, goals, values, abilities, and limitations.

Objective 5.2: To continue recruitment and orientation of additional students to the D,D&E programs being offered at the paraprofessional and entry-professional levels.
STUDENT RECRUITMENT & ORIENTATION

DECEMBER 19, 1971 to DECEMBER 31, 1972 - cont'd.

TASK 5. PERSONNEL SYSTEM

Procedures to attain objective:

1. Location of potential applicants.
2. Identification of potential applicants with special emphasis on minority persons.
3. Specification of desired background characteristics.
4. Communication of program opportunities to potential applicants through briefings, interest surveys, personal discussion, and communication and publicity.
5. Providing admission forms to applicants.

Procedure to evaluate objective: Evidence that the required numbers of students have been identified, recruited, and are enrolled in scheduled courses.

Objective 5.3: To develop, test, revise, and maintain a guidance and counseling program which will provide timely information to the student in developing optimal interpersonal and academic competencies within the program.

GUIDANCE AND COUNSELING

Procedures to attain objective:

1. Identification of students having problems.
2. Appointments with students having problems.
3. Encouragement of student decision making with regard to program and program alternatives to maximize student satisfaction and learning.
4. Assistance in overcoming obstacles to learning.
5. Individual or group counseling on student problems.

Procedures to evaluate objective:

1. Evidence of satisfactory student participation and progress in program as result of counseling activities.
2. Evidence of a minimum number of students leaving the program.
3. Evidence of instructor and student satisfaction with counseling and guidance services.

Objective 5.4: To develop and maintain an effective program for placing graduates in appropriate entry- or paraprofessional positions.

PLACEMENT

Procedures to attain objective:

1. Survey potential employers of D,D&E graduates to maintain current files on employment opportunities.
2. Determine number and type of employment opportunities.
3. Inform D,D&E program graduates with appropriate competencies of the employment opportunities available at various agencies.
4. Arrange for graduate-employer interviews.

Objective 5.5: To provide feedback to the training program on the effectiveness of the graduates after placement in entry- or paraprofessional jobs, and to provide counseling to graduates during the initial phases of employment.

FOLLOW-UP

Procedures to attain objective:

1. Obtain information from employers on effectiveness of graduates.
2. Obtain information from graduates on adequacy of training program in preparing them for employment.
3. Counsel trainees as necessary upon request from employer or graduate.

DECEMBER 19, 1971 to DECEMBER 31, 1972 - cont'd.

TASK 5. PERSONNEL SYSTEM

Objective 5.6: To maintain a personnel administration system to effect continued liaison services between consortium management, training institutions, training staff, trainees, agencies providing on-the-job training, evaluators, and agencies being served.

PERSONNEL ADMINISTRATION

Procedures to attain objective:

1. Review the functions of personnel administration system.
2. Review contract for previous year to ascertain its appropriateness and comprehensiveness for future years.
3. Revise contracts as necessary.
4. Select appropriate coordinators at institutions and negotiate scope-of-work contracts.

TASK 6. EMPLOYMENT SYSTEM

General Objective: To secure and maintain sufficient employing D,D&E and other training agencies to provide long-term employment of graduates,continuing education for employees, engineered internship positions, and demonstration sites for orientation and training of students.

Criterion for Evaluation: Evidence of a sufficient number of agencies actively participating in fulfilling the objectives to meet consortium needs.

Objective 6.2: To continue development and testing of a program which insures that students are provided with engineered internships.

INTERNSHIP EMPLOYMENT

Procedures to attain objective:

1. Determine characteristics and skills of students needing engineered internships.

2. Determine number of interns needed by agencies.

3. Obtain information on type of intern desired, competencies required.

4. Select most appropriate applicants and remit names to agencies for employment.

Procedure to evaluate objective: Provision of internships for all students in the program.

Objective 6.3: To develop an effective program for placing graduates in appropriate EP or PP positions at D,D&E employing agencies. GRADUATE PLACEMENT

Procedures to attain objective:

1. Contact employers to determine number and type of employment opportunities.

2. Advise graduates with appropriate competencies of employment opportunities at various agencies.

3. Arrange for graduate-employer interviews.

Procedure to evaluate objective: Placement of graduates in D,D&E agencies and evidence of growing interest in consortium graduates among employing agencies.

Objective 6.4: To continue securing, maintaining and improving demonstration sities of D,D&E activities for students in the consortium program. EMPLOYER DEMONSTRATION SITES

Procedures to attain objectives:

1. Contact agencies in regard to providing short- and long-term demonstration sites.

2. Visit agencies to gather information on types of work being conducted, staffing, and facilities for providing demonstrations.

Procedures to evaluate objective:

1. Evidence of member agencies willing to provide demonstration sites.

DECEMBER 19, 1971 to DECEMBER 31, 1972 - cont'd.

TASK 6. EMPLOYMENT SYSTEM

2. Evidence of variety of demonstration sites available to students.
3. Evidence of increased use of the demonstration sites available.

TASK 7. EVALUATION SYSTEM

General Objective: Complete development of overall systems evaluation instruments, continue development of evaluation instruments for D,D&E courses in preparation, and conduct evaluation of D,D&E programs in operation; continue monitoring of budget and accounting processes and prepare necessary reports.

Criteria for evaluation:

1. Successful implementation and operation of overall systems evaluation plan.
2. Preliminary and final drafts of modular evaluation instruments and intern evaluation devices submitted according to contract dates.
3. Accurate and sufficient budget monitoring records and accounting procedures.
4. USOE satisfaction with reports on consortium activities.
5. Review of consortium operations by outside evaluation board.

Objective 7.1: To complete a plan for the evaluation system of the D,D&E Functional Competence Training Program.

EVALUATION SYSTEM PLANNING & DESIGN

Procedures to attain objective:

1. Meet with ETS to discuss final plan for the D,D&E training program evaluation system.
2. Review operational effectiveness of prototype evaluation system. Submit to project director approved evaluation system plan for the training program.

3. Review evaulation system effectiveness in meeting consortium requirements for the various systems.

4. Revise existing evaluation system as necessary on basis of experience and review by external evaluation experts.

Objective 7.2: To continue preparation of instruments to evaluate student competencies for the courses under development during this time period, and to complete development of instruments for evaluating interns.

INSTRUMENT DEVELOPMENT

Procedures to attain objective:

1. Contract with consortium members and consultants to prepare evaluation instruments for D,D&E training programs as indicated in the schedule presented in Figure 4.

2. Review intern evaluation instruments and approve final copies.

Objective 7.3: To conduct field test of evaluation instruments for training programs being prototype tested during this time period; begin monitoring of operations, and conduct special analyses as needed.

OPERATIONS ANALYSIS

Procedures to attain objective:

1. Prepare and administer modular evaluation instruments in D,D&E courses being prototype tested during this time period.

2. Hold periodic visits and discussion with instructors of courses being prototype tested during this period, for purposes of monitoring the operation of the training system.

3. Prepare and administer intern evaluation instruments to all interns placed in development agencies during this time period.

4. Monitor intern progress by periodic consulation with interns and visits to institutions and agencies providing intern placements.

Objective 7.4: To initiate output analyses of programs and system evaluation, component (subsystem) evaluation, student evaluation, and employer evaluation.

OUTPUT ANALYSIS

DECEMBER 19, 1971 to DECEMBER 31, 1972 - cont'd.

TASK 7. EVALUATION SYSTEM

Procedures to attain objective:

1. Plan and design a system for program evaluation analysis.
2. Establish data collection system for securing and organizing necessary evaluational information.
3. Perfom analysis of initial evaluation data.

Objective 7.5: To continue appropriate budget monitoring and accounting procedures, preparation of annual report, and preparation of statement for prior budget period.

BUDGET ANALYSIS

Procedures to attain objectives:

1. Prepare timely budget statements and continue adequate accounting.
2. Prepare comprehensive annual report, including budget statement.

Objective 7.6: To continue and expand review of consortium evaluation system by experts selected from agencies outside the consortium.

EXTERNAL AUDITS AND REVIEWS

Procedures to attain objective:

1. Identify external evaluation experts to review and revise consortium's evaluation system.
2. Provide experts with information necessary for reviewing evaluation system.
3. Revise evaluation system in response to expert's comments.
4. Submit experts' comments and revised evaluation system to USOE.

JANUARY 1, 1973 to AUGUST 31, 1974

JANUARY 1, 1973 to AUGUST 31, 1974

TASK 1. SYSTEM DESIGN, DEVELOPMENT, AND EVALUATION

General Objective: To design develop, and evaluate a D,D&E functional competence training system model.

Criterion for Evaluation: Evidence that the D,D&E functional competence training system model has been developed and is effectively meeting the requirements for training and upgrading personnel for educational D,D&E.

Objective 1.3: To continue development of a functional competence training system model for training and upgrading personnel for educational D,D&E. SYSTEM DEVELOPMENT

Procedures to attain objective:

1. Continue study of a need assessment base. This includes a review of existing information regarding national manpower projections and a survey of the Far West regional requirements, perceived training needs, and number and kind of potential apprentice or job placement positions.

2. Continue re-examination of priorities regarding professional levels, functional context, and institutional job settings to determine levels of training required.

3. Continue review of job and task analysis data, especially as new data becomes available.

4. Continue specification of job competencies.

5. Continue specification and examination of training requirements.

6. Continue relating design of training to institutional constraints and consortium resources.

7. Continue development of supporting systems.

8. Continue definition and delineation of content.

9. Continue design of Ph.D. program in D,D&E.

Procedure to evaluate objective: Examine logical consistency and sufficiency of the outcomes of the eight steps described above.

Objective 1.4: To continue to evaluate the effectiveness of a functional competence training system model for training and upgrading personnel in educational D,D&E.

SYSTEM EVALUATION

Procedures to attain objective:

1. Continue to review the overall approach to systems evaluation as described in the proposal.
2. Continue to review adequacy of subsystem evaluation data.
3. Continue to determine effectiveness of subsystem functioning.
4. Continue to determine effectiveness of interfaces between subsystems.
5. Continue to identify deficiencies in functions and interfaces of the subsystems.
6. Continue to revise model to alleviate detected deficiencies.

Procedures to evaluate objective:

1. Submit data on subsystem functions and interfaces to Consortium Board for conceptual testing.
2. Submit data on subsystem functions and interfaces to outside evaluation committee.
3. Secure recommendations of outside evaluation committee regarding improvement of evaluation procedures.

TASK 2. INTEGRATING SYSTEM

General Objective: To maintain a management system to organize, assign, coordinate, and monitor the activities necessary to carry out program plans; to provide for internal evaluation and communication.

JANUARY 1, 1973 to AUGUST 31, 1974

TASK 2. INTEGRATING SYSTEM

Procedures to attain objective:

1. Provide management for the consortium in a manner that attains goals and objectives, and implements priorities established in program plans.
2. Continue to monitor the various other systems of the consortium and coordinate their special functions.
3. Maintain continued evaluation of the effectiveness of the training consortium with respect to its program goals and objectives, its training, and in meeting the needs of the D,D&E personnel in the field.
4. Maintain a communication system which directs the flow of necessary information into the Integrating System so that consortium activities can be effectively managed and adjusted.

Criteria for evaluation:

1. Evidence that the training consortium is meeting the goals, objectives, and priorities established in program plans.
2. Evidence that the various systems maintain staffs with the necessary qualified professional and technical personnel.
3. Evidence that the consortium operations are continually being reviewed and modified as necessary to meet program goals.
4. Evidence of continuing evaluation of the effectiveness of consortium training activities.
5. Evidence that the established communication channels are functioning and meeting the needs of the consortium members and USOE.

TASK 3. TRAINING DEVELOPMENT

General Objective: To continue development and refinement of the training program, including course development, engineered internship development, and staff development.

Criteria for evaluation:

1. Course material developed and testing accomplished according to the schedule indicated in Figure 4.

2. Satisfactory completion of engineered internship as judged by student, instructor, and employing agency.

3. Positive instructor reaction to staff development activities, and evidence of change in teaching strategies and student/teacher interaction and organizational procedures.

Objective 3.2: To develop and test courses as indicated in Figure 4.

COURSE DEVELOPMENT

Procedures to be followed in the formative development of courses:

1. Revise course material and functional context experiences as indicated by evaluation of prototype testing.

2. Conduct main field testing.

3. Revise, based on findings of main field testing.

4. Develop operational test form for other sites.

Objective 3.3: To continue development and testing of an engineered internship program that will provide extended and intensive opportunity through work experience to apply the competencies acquired.

ENGINEERED INTERNSHIP DEVELOPMENT

Procedures to attain objective:

1. Continue prototype test of engineered internship program.

2. Solicit comments on engineered internship program from advisers, students, and employers.

TASK 3. TRAINING DEVELOPMENT

3. Discuss comments with developers of program.

4. Revise program.

5. Continue testing until program satisfies design requirements and needs of advisers, students, and employers.

Objective 3.4: To conduct staff training that will implement the training characteristics of instructional experiences, selection and use of resources, management of learning and learner.

STAFF DEVELOPMENT

Procedures to attain objective:

1. Convene coordination meetings during the academic year for informal sharing of experiences, critique videotape recording of critical teaching/learning situations, viewing model teaching tapes and demonstrations, and using self evaluation techniques (e.g., Flanders' Interaction Analysis).

2. Obtain student and instructor reactions on instructional staff performance.

3. Encourage instructional staff to revise instructional approaches to more effectively manage instructional needs of students.

4. Prototype test revised staff training.

TASK 4. TRAINING IMPLEMENTATION

General Objective: To continue impelementation of the training system including paraprofessional programs, entry-professional programs, internship programs, continuing education program, staff training program, and employer recruitment.

Criteria for evaluation:

1. Adherence to time schedule for testing of courses as indicated in Figure 4.

2. Enrollment of students in an institution and employment by an agency as interns.

3. Meeting of continuing education requests for on-site courses for inservice training.

4. Completion of staff training for instructors new to the program, and of continuing instructors as necessary.

5. Recruitment of sufficient employers to provide internships for all students enrolled in the program.

Objective 4.6: To provide continuing staff training for instructors, counselors, and employers to familiarize them with the total program operation and to develop problem solution procedures. STAFF TRAINING

Procedures to attain objective:

1. Provide instructors, counselors, and employers with the material necessary to understanding of program operations.

2. Hold meetings and training sessions as needed and requested with instructors, counselors and/or employers.

3. Establish a communication system to assure free flow of current information regarding the program.

Objective 4.7: To continue recruiting of employers who will offer internship positions for students at paraprofessional and entry-professional levels. EMPLOYER RECRUITMENT

Procedures to attain objective:

1. Contact likely development agencies and school districts to inform them about the D,D&E program and the engineered internship, and to solicit their support and involvement.

JANUARY 1, 1973 to AUGUST 31, 1974 cont'd.

TASK 4. TRAINING IMPLEMENTATION

2. Solicit continued participation of consortium member agencies and institutions.

Objective 4.8: To orient the employing agency supervisors to the purposes of the internship program and procedures for beginning and continuing an internship placement in the agency.

SUPERVISOR ORIENTATION

Procedures to attain objective:

1. An instructor visit to each supervisor to review the competencies to be applied by the intern in relation to the work assignment.
2. An overview of the D,D&E training system, plus specific information on the internship program, presented by a consortium member for agencies unfamiliar with the system.
3. Orientation of the supervisors on the information requirements of the program and the use of evaluation materials.

Objectives 4.9 and 4.10: To continue implementation of the D,D&E training program at the paraprofessional and entry-professional levels in accredited institutions.

PP & EP PROGRAM OPERATIONS

Procedures to attain objectives:

1. Conduct courses as indicated in the schedule presented in Figure 4.
2. Assign personnel to monitor internships.
3. Assign personnel to counsel students.

Objective 4.11: To meet the continuing education needs of employees of development agencies.

CONT. ED. PROGRAM OPERATIONS

Procedure to attain objective:

1. Acquaint employers and agencies with existence of D,D&E program and its advantages in providing inservice training.

2. Determine employee and employer interest in competencies taught in the program.

3. Negotiate with appropriate college district for accreditation of courses.

4. Provide D,D&E courses as requested by development agencies at other institutions or on site.

5. Arrange for instructors and facilities for presentation of courses.

6. Register students and monitor program.

TASK 5. PERSONNEL SYSTEM

General Objective: To maintain a personnel system that will provide for student recruitment and orientation, guidance and counseling, placement and follow-up.

Criterion for evaluation: Evidence of effectiveness of the system in meeting the needs of the student in his attempts to integrate his learning experiences in the training program with his personal needs, goals, values, abilities, and limitations.

Objective 5.2: To continue recruitment and orientation of additional students to the D,D&E programs being offered at the paraprofessional and entry-professional levels.

STUDENT RECRUITMENT AND ORIENTATION

Procedures to attain objective:

1. Locate potential applicants.

2. Identify potential applicants, with special emphasis on minority persons.

3. Specify desired background characteristics.

4. Communicate program opportunities to potential applicants through briefings, interest surveys, personal discussion, letters and publicity.

5. Provide admission forms to applicants.

TASK 5. PERSONNEL SYSTEM

Procedure to evaluate objective: See evidence that the required numbers of students have been identified, recruited, and enrolled in scheduled courses.

Objective 5.3: To maintain a guidance and counseling program which will provide timely information to the student in developing optimal interpersonal and academic competencies within the program. GUIDANCE AND COUNSELING

Procedures to attain objective:

1. Identify students having problems.
2. Make appointments with students having problems.
3. Encourage student decision making with regard to program and program alternatives to maximize student satisfaction and learning.
4. Assist students in overcoming obstacles to learning.
5. Hold individual or group counseling sessions on student problems.

Procedures to evaluate objective:

1. Obtain and review evidence of satisfactory student participation and progress in program as result of counseling activities.
2. Obtain and review evidence of a minimum number of students leaving the program.
3. Obtain and review evidence of instructor and student satisfaction with counseling and guidance services.

Objective 5.4: To maintain an effective program for placing graduates in appropriate entry- or paraprofessional positions. PLACEMENT

Procedures to attain objective:

1. Continue to survey potential employers of D,D&E graduates to maintain current files on employment opportunities.

2. Determine number and type of employment opportunities.

3. Inform D,D&E program graduates with appropriate competencies of the employment opportunities available at various agencies.

4. Arrange for graduate-employer interviews.

Objective 5.5: To provide feedback to the training program on the effectiveness of the graduates after placement in entry- or paraprofessional jobs, and to provide counseling to graduates during the initial phases of employment.

FOLLOW-UP

Procedures to attain objective:

1. Obtain information from employers on effectiveness of graduates.

2. Obtain information from graduates on adequacy of training program in preparing them for employment.

3. Counsel trainees as necessary upon request from employer or graduate.

Objective 5.6: To maintain a personnel administration system to effect continued laison services between consortium management, training institutions, training staff, trainees, agencies providing on-the-job training, evaluators, and agencies being served.

PERSONNEL ADMINISTRATION

Procedures to attain objective:

1. Review the functions of personnel administration system.

2. Review contract for previous year to ascertain its appropriateness and comprehensiveness for future years.

3. Revise contracts as necessary.

4. Select appropriate coordinators at institutions and negotiate scope-of-work contracts.

JANUARY 1, 1973 to AUGUST 31, 1974

TASK 6. EMPLOYMENT SYSTEM

General Objective: To secure and maintain sufficient employing D,D&E and other training agencies to provide long-term employment of graduates, continuing education for employees, engineered internship positions, and demonstration sites for orientation and training of students.

Criterion for Evaluation: Evidence of a sufficient number of agencies actively participating in fulfilling the objectives to meet consortium needs.

Objective 6.2: To continue development and testing of a program which insures that students are provided with engineered internships.

INTERNSHIP EMPLOYMENT

Procedure to attain objective:

1. Determine characteristics and skills of students needing engineered internships.
2. Determine number of interns needed by agencies.
3. Obtain information on type of intern desired, competencies required.
4. Select most appropriate applicants and remit names to agencies for employment.

Procedure to evaluate objective: Provision of internships for all students in the program.

Objective 6.3: To continue to develop an effective program for placing graduates in appropriate EP or PP positions at D,D&E employing agencies.

GRADUATE PLACEMENT

Procedures to attain objective:

1. Contact employers to determine number and type of employment opportunities.
2. Advise graduates with appropriate competencies of employment opportunities at various agencies.
3. Arrange for graduate-employer interviews.

Procedure to evaluate objective: Placement of graduates in D,D&E agencies and evidence of growing interest in consortium graduates among employing agencies.

Objective 6.4: To continue securing, maintaining, and improving demonstration sites of D,D&E activities for students in the consortium program. EMPLOYER DEMONSTRATION SITES

Procedures to attain objective:

1. Contact agencies in regard to providing short- and long-term demonstration sites.
2. Visit agencies to gather information on types of work being conducted, staffing, and facilities for providing demonstrations.
3. Provide training institutions with information about demonstration facilities at the various agencies.

Procedures to evaluate objective:

1. Secure evidence of member agencies willing to provide demonstration sites.
2. Secure evidence of variety of demonstration sites available to students.
3. Secure evidence of increased use of the demonstration sites available.

TASK 7. EVALUATION SYSTEM

General Objective: To complete evaluation instruments development for D,D&E courses, continue field testing and operations monitoring, output analysis, and budget analysis; and to initiate cost/effect studies.

Criteria for evaluation:

1. Adherence to time schedule for development of evaluation instrument, as indicated in Fig. 4.
2. Adherence to time schedule for administration of evaluation instruments to D,D&E program in progress.

TASK 7. EVALUATION SYSTEM

3. Adherence to evaluation plan, including systematic and timely data collection and analysis.

4. Continuation of accurate and sufficient budget monitoring records and accounting system for conducting cost/effect studies.

Objective 7.2: To conclude development of instrument for evaluating student and intern competencies for courses under development.

INSTRUMENT DEVELOPMENT

Procedures to attain objective:

1. Continue contract with consortium members and consultants to prepare evaluation instruments for D,D&E training programs, as indicated in the schedule presented in Fig. 4.

2. Continue revision and testing of intern rating instruments.

Objective 7.3: To continue field testing of evaluation instruments for training programs being tested during this time period, continue monitoring of operations, and conduct special analyses as needed.

Procedures to attain objective:

1. Administer modular evaluation instruments in D,D&E courses being prototype tested during this time period.

2. Periodically visit courses being prototype tested during this period and hold discussions with the instructors for the purpose of monitoring the training system.

3. Continue administration of intern evaluation instruments to interns placed in development agencies during this time period.

4. Continue monitoring of intern progress by periodic consultations with interns and visits to institutions and agencies providing intern placements.

Objective 7.4: To continue output analyses of programs and system evaluation, component (subsystem) evaluation, student evaluation, and employer evaluation.

OUTPUT ANALYSES

Procedures to attain objective:

1. Continue systematic data collection for all programs in operation during this time period.

2. Continue analysis of output evaluational data.

Objective 7.5: To continue appropriate budget monitoring and accounting procedures, preparation of annual report, and preparation of statement for prior budget period.

Procedures to attain objectives:

1. Preparation of timely budget statements and continuation of adequate accounting.

2. Preparation of comprehensive annual report, including budget statement.

TASK 8. IMPLEMENTATION PACKAGING.

General Objective: To produce a complete package for implementing the Functional Competence Training Model.

Criterion for evaluation: Evidence that implementation packaging requirements, including user instructions, packaging, service manuals, and advertising copy, have been satisfied.

Objective 8.1: To design an implementation package for using the Functional Competence Training Model.

Procedures to attain objective:

1. Check products to determine implementation packaging requirements (e.g., user instructions, packaging service manuals, advertising copy, etc.)

TASK 8. IMPLEMENTATION PACKAGING

2. Compile and evaluate information on qualifications of potential distributors, dissemination agents, and channels.

3. Collect and organize information, materials, and products required to conduct briefings, demonstrations, and promotions.

4. Collect and organize information relating to the establishment of product service, consumer training, and customer engineering or installation requirements.

5. Collect, organize and evaluate information and data on requirements relating to product utilization or improvement.

6. Synthesize above information to produce design for implementation package.

7. If possible, conduct "operational tests" at other consortium sites to determine implementation package requirements.

Objective 8.2: To develop an implementation package for using the Functional Competence Training Model.

PACKAGE DEVELOPMENT

Procedures to attain objective:

1. Review design for implementation packaging.
2. Select implementation packaging team.
3. Specify scope of work to be accomplished by each team.
4. Negotiate contracts to include funding and developmental schedule with each team.
5. Monitor production.
6. Review materials produced to determine congruence with design requirements.
7. If possible, test at another site to determine adequacy and make necessary revisions.
8. Approve final copies of materials developed.
9. Supervise production of materials in quantities required.

SECTION III

CONSORTIUM PLAN - BEYOND AUGUST 31, 1974

This section provides a general overview of the consortium's long range plans and possibilities beyond August 31, 1974.

SECTION III. CONSORTIUM PLAN BEYOND AUGUST 1974

Long-Range Objectives

Detailed specification of long-range plans is extremely difficult. Planning for consortium directions and activities beyond 1974 must necessarily include consideration of a number of factors, based on additional input and feedback derived from operational testing of the Functional Competence Training Model. Results of this testing will produce information on the flexibility of the model to meet changing D,D&E needs, the adequacy of the training to meet these needs, and effectiveness of subsystems in supporting the achievement of the model's objectives.

Additionally, in planning for years beyond 1974, consideration must be given to posture shifts based upon the changing needs seen by the Office of Education during the intervening years, in order that future program development and implementation may reflect then-current D,D&E personnel training requirements. Thus, consultation and discussion with Office of Education personnel will be vital to formulation of plans beyond 1974.

The consortium will have completed development and testing of model Functional Competence Training Programs for the EP and PP levels for preservice and continuing education by 1974. These will be available in transportable form. The intent is to work closely with USOE to develop plans for the formation and installation of Functional Competence Training Model consortia in other regions.

Procedures

The Design Report (Hood, et al., 1970, Volume Two, Section H) provided the rationale for the choice of priority focus with respect to (a) Functional Emphases on the Process of RDD&E, (b) the levels of professionalization, and (c) institutional job settings. We indicated that our analyses led us to give priority to the Functional Emphases which Clark and Hopkins have labeled as "gathering operational and planning data," "inventing solutions," "engineering packages and programs," "testing and evaluation solutions and programs," and "informing target systems about solutions and programs." Taken together, these functional emphases provide for the "compleat developer" who is concerned at the beginning of his work with an adequate operational analysis and planning basis and at the end of his work with adequate provision for dissemination, distribution or marketing of his solution, package or program.

It should be noted that the Far West Laboratory is simultaneously developing (with basic contract funds, grants from the National Center for

Educational Communication, and Research Training Branch instructional materials funds), a complementary diffusion and educational renewal training development effort which currently exceeds in its funding the magnitude of the Far West D,D&E Training Consortium funds. This effort has focussed on training of linkage agents and the creation of an entire educational management system. Courses under development include: problem analysis, goal setting, deriving instructional objectives, analyzing curriculum alternatives, planning for program implementation, and evaluation and management of instructional programs, as well as a complete package for training the "Educational Information Consultant."

These latter efforts do not encompass all diffusion roles but certainly relate to Clark and Hopkins' "Training Target Systems in the Use of Solutions and Programs" and "Servicing and Nurturing Installed Solutions and Programs." The Educational Information Consultant Package relates to "Informing Target Systems about Solutions and Programs." It should be emphasized that these several training developments are conceptually and practically coordinated. They are all in Division II (Communication Program) under the direction of Dr. Paul Hood. There is sharing of staff, joint planning, and a common conceptualization and training systems development strategy. But because of the difference in locus of activity for development, dissemination, and educational practice renewal in schools, there are important differences in implementation strategies.

Taken together the Far West Laboratory is developing major training systems with regard to educational development, some selected aspects of diffusion, and a broad array of educational planning, programming, evaluation and management skills.

The most remarkable voids are (a) some aspects of diffusion (e.g., Demonstrating the Effectiveness of Solutions and Programs), (b) many aspects of evaluation (other than those directly related to developing or planning for the evaluation of instructional programs in school systems), (c) nearly all aspects of research.

With respect to levels of professionalism, we have chosen to place priority on training at three levels:

Pre-employment and continuing education for paraprofessionals.

Pre-employment and continuing education for entry-level professionals.

Continuing education for advanced professionals.

Review of the economic situation , job market, and funding prospects for educational RDD&E has been a continuing activity. We must admit that the prospective demand for large numbers of paraprofessionals in the near future is not encouraging, but commitment to Affirmative Action programs and Equal Opportunity Employment still makes the need for this level of training valid. Moreover, it is quite clear that short-term and mid-term trends in demand and supply point to the ascendancy of continuing education requirements over pre-employment requirements.

We believe there is a definite requirement for advanced professional (AP) courses, but they may not be such a simple elaboration on the M.A.-level program as our design report envisioned or as is reflected in the TTT charts. (See Section IV and Appendix A.) For this reason we are proposing to look at the advanced graduate-level training again. (See Appendix R.)

With respect to institutional job settings the consortium aims primarily at development agencies. Our other development activities are aimed either at dissemination projects, i.e., the Educational Information Consultant, or the local educational agency and the educational renewal center.

As we have previously noted, the Far West D,D&E Consortium has elected to start with an initially highly constrained system in order to focus development and evaluation resources on the model of an adaptive system that can be easily expanded or adapted to serve a much more comprehensive set of personnel training needs.

From the beginning, we required creation of a design and development of a model that would be replicable or modifiable to meet new requirements and that would be designed for implementation elsewhere.

Hence, our general intent for post-1974 activity points in three directions:

1. Providing for the survival and growth of the Far West D,D&E Training Consortium.

2. Providing assistance in the establishment of Functional Context Model programs elsewhere.

3. Continued development of training materials and support systems for educational RDD&E training and for "educational renewal specialists" training.

Far West Consortium. We must frankly admit that specific plans for beyond 1974 are not available at this time. The participating colleges are still struggling with the markedly radical departures which our model requires of them. Our employers have no real experience with an intern who has completed even one course. Development of detailed agency plans for 1973, 1974, and beyond is a major item which will be undertaken during 1972. Results of surveys (see Appendix B for example) and discussions with employers are encouraging, but some amount, possibly at least six months, of operating experience (operating programs did not begin until mid-September 1971) will be required before a realistic assessment may be made by the participating agencies. Before this assessment is made, long-range plans with realistic commitment seem premature.

Assistance in Establishing other Consortia. There are several considerations which affect the feasibility of installing and maintaining a complex instructional program in additional locations. First, before a given design can be effectively utilized in other regions, it must be constrained by a knowledge of alternative sites and applications. The present design is sufficiently flexible to adapt to the specific range of needs, values, capabilities, habits, operating characteristics, and resources of those potential users who are known to us. (The requirements of potential users are estimated by reading the literature, making surveys, and confining attention to the main features of their particular requirements.)

Second, the system and its various components must be developed in such a way as to permit flexibility in some future adaptation.

Third, the agencies of the present consortium in themselves represent a fairly wide range of conditions. The study and analysis of the problems of our own growth and operations may provide the broad base of information necessary for replication in another setting, by making it possible to anticipate many problems which will arise from such adaptation.

Fourth, the system and its various parts must be revised and modified until a durable, efficient package is established.

Finally, a complete implementation of the system as well as its appropriate sub-configurations must be developed, operationally tested, refined, and made available. The development cost of the present model cannot be justified if it is not transportable, implementable, acceptable, and so maintainable as to assume usability over a period of time appropriate to changing conditions. The consortium will be gathering information and making revisions to accomplish this so that its eventual plans will be as complete and relevant as possible.

Our present plan calls for relatively comprehensive "implementation packaging." Actual assistance will depend on the encouragement and support of the Office of Education. Planning for such activity might be initiated in 1972 and certainly should be initiated by 1973.

Continued Development. By 1974 the first phase, the provision of training for D,D&E personnel, will have been completed. The programs developed during this period are for training sub-doctoral development personnel at three levels:

Pre-employment and continuing education for paraprofessionals (technicians).

Pre-employment and continuing education for entry-level professionals (assistants and interns).

Continuing education for professionals.

There will remain the unmet need to provide short- and long-term training programs in D,D&E for doctoral and post-doctoral personnel. The AERA pre-sessions and other institutes have already provided some short courses. The training programs developed during the consortium's first phase do not have the necessary depth or breadth to justify their use in a doctoral or post-doctoral level long-term training program. However, these programs should provide a more than adequate set of materials to serve as a point of departure in developing a comprehensive doctoral program.

In the period subsequent to 1974, the consortium may focus on the second phase of developing training programs for D,D&E personnel in the following areas:

Doctoral and post-doctoral continuing education training for developers with special emphasis on management and other critical skills.

Training of "knowledge utilization" personnel to include information specialists, analysts, planners, program managers in educational renewal centers and local educational agencies.

Training of D&D evaluation personnel to serve federal, regional, state and local agencies.

An initial effort aimed at the design of an advanced graduate-level program in the training of management for educational R&D and educational planning is presented in Appendix R.

A continuation of the Consortium Plan (Section II) showing the diffusion of the model to other consortia is presented next.

SEPTEMBER 1, 1974 AND BEYOND

TASK 1. SYSTEM DESIGN, DEVELOPMENT, AND EVALUATION

General Objective: To design, develop, and evaluate D,D&E functional competence training system model.

Criterion for Evaluation: Evidence that the D,D&E functional competence training system model has been developed and is effectively meeting the requirements for training and upgrading personnel for educational D,D&E.

Objective 1.5: To install the Functional Competence Training Model in other regions.

SYSTEM DIFFUSION

Procedures to attain objective:

1. Schedule series of consultations with USOE personnel to determine other regions which would benefit from Functional Training Program Model Consortia.
2. Conduct studies of possible regions to determine the needs, values, capabilities, habits, operating characteristics, and resources.
3. Select, in coordination with USOE, region or regions most likely to benefit from consortia training model.
4. Enter into agreements with agencies and institutions in regions selected to form D,D&E Consortia.
5. Provide supervision for installing and maintaining consortia.
6. Monitor consortia activities as necessary.

Procedures to evaluate objective:

1. Determine whether consortium becomes operational on schedule.
2. Determine whether materials have been revised to meet region's D,D&E needs.
3. Determine whether student quotas are being met.
4. Determine whether program is developing the competencies necessary for meeting the region's D,D&E requirements.
5. Determine whether the model's subsystems are providing the support necessary to insure effective functioning of the training program.

SECTION IV

DETAILED SCOPE OF WORK

19 December 1971 - 31 August 1974

This section provides a time chart of proposed consortium activities and outputs with time commitments of key personnel responsible for the activities; background information on all key personnel, subcontracting organizations, and consortium members.

SECTION IV. SCOPE OF WORK

19 December 1971 - 31 August 1974

The Consortium's initial design was based on the assumption that up to $500,000.00 would be available annually for three years. This would have permitted completion of the development, evaluation, and implementation packaging of the Functional Competence Training Program. The Consortium was required to cut this figure in half, which posed major problems regarding where the work would be cut. We elected to provide for the training of D,D&E generalists who would be competent in five major functional contexts of D,D&E for the M.A. candidate and three for the AA degree candidate. Still we kept our options open to consider training at the Ph.D. and B.A. levels.

We also indicated that development of the Management course (task 3.2.15) would be dependent upon additional funding. Recent funding guidelines from USOE indicate that funding requests for next year should be for $350,000.00. This increase in funding will permit us to begin development of the Management course and initiate a study of feasibility and advanced design of a Ph.D. program.

The following four pages present TTT Schedules (Time, Task and Talent Schedules) outlining the tasks and subtasks undertaken and estimating the probable start, duration, and termination of each. Consideration was given to such factors as the need for reporting, contingencies between activities, lead times, project work leads, and time and funding constraints. Rough PERT networks were used to test contingencies between tasks and to estimate schedule times. The TTT Schedule was selected, in preference to a PERT network, as a more compact and comprehensible display. (The initial TTT chart is presented as Appendix A.)

Solid lines between arrows indicate the most probable time for the activity. Intermittent lines indicate continuous or frequently recurring activity. Termination events are designated by the letters:

D= completion of detailed design specifications

P= completion of prototype

V= completion of validation test, and development of "main form" (Complete development would, in our view, call for operational tests at other sites followed by refinement of a "release form.")

Time periods are indicated in quarters of a year from the start of the design phase.

At the extreme right the organizational TALENT responsible for each task is indicated by dots in columns headed:

C- Consortium Management (Consortium Board of Directors and Planning and Management Staff)

D- Developers (FWL, AIR, ETS, HumRRO, SRI, TIS)

SF- San Francisco State College

SMCC- San Mateo Community College District

E- Employers

Two levels of training programs are scheduled: the Paraprofessional Programs (AA degree and continuing education), and the Entry-level Professional Programs (M.A. degree and continuing education). Course development (Task 3.2) for these two program levels is slightly different in its scheduling; hence, each course is separately identified as EP (entry-level professional program) or PP (paraprofessional program). Courses identified as AP (advanced professional) are scheduled, but development will be undertaken only if additional funds become available (Tasks 3.2.11, 3.2.14, and 3.2.16) and the associated instrument development (Task 6.2.8) also will not be undertaken unless additional funds become available.

The dots under the talent columns identify agencies having a major responsibility for the accomplishment of the listed tasks. For instance, Task 1.2 Detailed System Design was one of the earliest tasks to be initiated in the operational phase (February 1, 1971). The Consortium (C), including management staff and representatives of all member agencies worked with developers (D), including the Far West Laboratory as prime contractor and subcontractors in preparing the detailed system design.

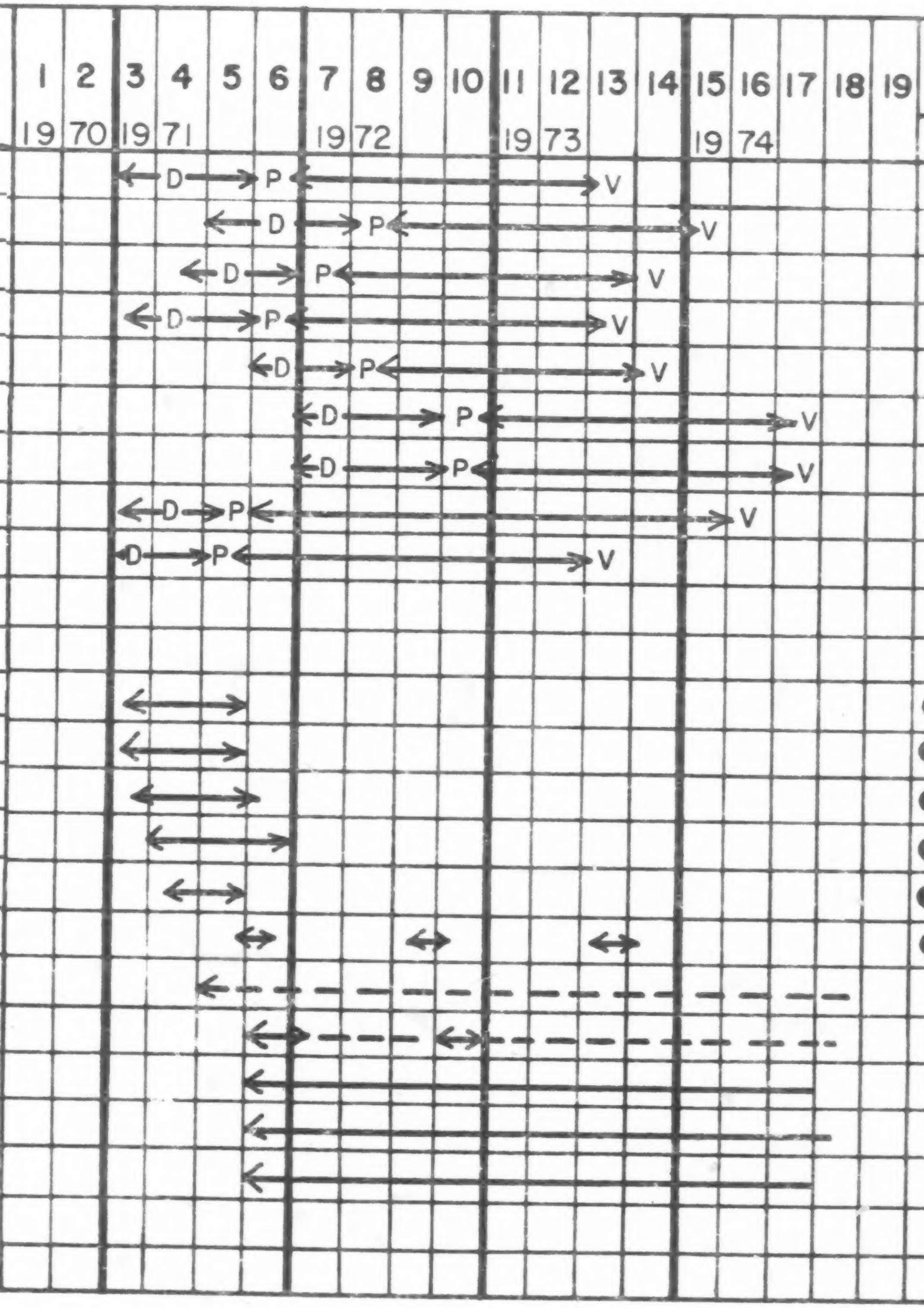
Responsibility for the Integrating System (Task 3) is primarily that of the Consortium (staff and board).

Training Development involves developers (D) with the staffs of San Francisco State (SF) if the course is entry-level professional (EP); or with the staff of the San Mateo Community College District (SMCC) if the course is paraprofessional (PP). Generally design is a joint effort. Learning episodes and modules that may be adapted from existing materials may be assigned to college staff for preparation. Those requiring extensive development may be assigned to contracting development agency staff. Operational testing is a joint effort with the college staff conducting training and the development staff aiding in conduct of assessment activities. Wherever possible at least two developers are involved in working on the same course in an effort to compensate for differences in perspective. This will sometimes be accomplished by assigning development of the corresponding assessment instruments (Task 7.2) to a different subcontractor.

The employer group includes all agencies or educational instituions providing engineered internship positions, participating in support of the Continuing Education Programs, or hiring graduates of the degree programs. These employers are important participants in Tasks 3.3, 4.3, 4.4, 4.7 to 4.11, 5.4, 6.2, 6.3, 6.4, 7.4.3, and 7.4.4.

TIME, TASK AND TALENT SCHEDULE: FUNCTIONAL COMPETENCE D,D&E TRAINING MODEL

TASK / TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	TALENT				
	19	70	19	71			19	72			19	73			19	74				C	D	SF	CC	E
TASK 1. SYSTEM D,D&E																								
1.1 Preliminary System Design	←	→																		●				
1.2 Detailed System Design			←	→		←	—	—	→											●	●			
1.3 System Development				←	—	—	—	—	—	—	—	—	—	—	—	→					●			
1.4 System Evaluation					←	—	—	—	—	—	—	—	—	—	—	—	→				●			
1.5 System Diffusion (Replication)															←	- -	- -	- -		●				
TASK 2. INTEGRATING SYSTEM																								
2.1 Planning & Programming			←	—	→															●				
2.2 Management			←	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	→			●				
2.3 Evaluation					←	—	—	—	—	—	—	—	—	—	—	—	→			●				
2.4 Communication			←	—	—	—	—	—	—	—	—	—	—	—	—	—	→			●				
TASK 3. TRAINING DEVELOPMENT																								
3.1 Trng. Sys. Planning & Programming			←	—	→															●				
3.2 Course Development																								
3.2.1 Analysis Course - EP							←D	—	→	P←	—	—	—	—	—	→	V				●	●		
3.2.2 Planning & Design Course - EP			←	D	→	P←	—	—	—	—	—	→	V								●	●		
3.2.3 Planning & Design Course - PP			←	D	→	P←	—	—	—	—	—	→	V								●		●	
3.2.4 Developmental Engin. Course-EP					←D	→	P←	—	—	—	—	—	—	→	V						●	●		
3.2.5 Developmental Engin. Course-PP					←D	→	P←	—	—	—	—	—	—	→	V						●		●	
3.2.6 Evaluation Course - EP					←D	→	P←	—	—	—	—	—	—	→	V						●	●		
3.2.7 Evaluation Course - PP							←D	→	P←	—	—	—	—	—	—	→	V				●		●	
3.2.8 Dissemination & Mrkt. Course - EP							←D	→	P←	—	—	—	—	—	—	→	V				●	●		
3.2.9 Info./Data Collection & Org. - EP			←	D	—	P←	—	—	—	—	—	→	V								●	●		



TASK	C	D	SF	CC	E
3.2.10 Info.Data Collection & Org.-PP		●		●	
3.2.11 Info./Data Collection & Org.-AP		●	●		
3.2.12 Communication Skills Course-EP		●	●		
3.2.13 Communication Skills Course-PP		●		●	
3.2.14 Communication Skills Course-AP		●	●		
3.2.15 Management Course - EP		●	●		
3.2.16 Management Course - AP		●	●		
3.3 Engineered Internship Development	●	●			●
3.4 Staff Development			●	●	
TASK 4. TRAINING IMPLEMENTATION					
4.1 Para-Professional Program Planning	●			●	
4.2 Entry Professional Program Planning	●		●		
4.3 Internship Program Planning	●		●	●	●
4.4 Continuing Education Program Planning	●		●	●	●
4.5 Orientation & Staff Tng. Program Planning	●		●	●	
4.6 Staff Training	●		●	●	
4.7 Employer Recruitment			●	●	●
4.8 Supervisor Orientation			●	●	●
4.9 Para-Professional Program Operations				●	
4.10 Entry-Professional Program Operations			●		●
4.11 Continuing Education Program Operations			●	●	●

TASK / TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	TALENT				
	19	70	19	71			19	72			19	73			19	74				C	D	SF	CC	E
TASK 5. PERSONNEL SYSTEM																								
5.1 Personnel Syst. Planning & Design			←	→																●		●	●	
5.2 Student Recruitment & Orientation					↔		↔		↔			↔	↔		↔							●	●	
5.3 Guidance & Counseling						←	—	—	—	—	—	—	—	—	—	—	—					●	●	
5.4 Placement						←	—	—	—	—	—	—	—	—	—	—	—					●	●	●
5.5 Follow-up										←	—	—	—	—	—	—	—			●		●	●	
5.6 Personnel Administration						←	—	—	—	—	—	—	—	—	—	—	—					●	●	
TASK 6. EMPLOYMENT SYSTEM																								
6.1 Employment Syst. Planning & Design			←	—	→															●				
6.2 Internship Employment						←	—	—	—	—	—	—	—	—	—	—	—					●	●	●
6.3 Graduate Placement						←	—	—	—	—	—	—	—	—	—	—	—					●	●	●
6.4 Employer Demonstration Sites					←	—	—	—	—	—	—	—	—	—	—	—	—					●	●	●
TASK 7. EVALUATION SYSTEM																								
7.1 Evaluation Syst. Planning & Design			←	—	→															●				
7.2 Instrument Development																								
7.2.1 Analysis Competencies									←	—	—	—	—	→										
7.2.2 Planning & Design Competencies					←	—	—	—	—	→											●			
7.2.3 Development Competencies						←	—	—	—	—	—	→									●			
7.2.4 Evaluation Competencies						←	—	—	—	—	—	→									●			
7.2.5 Dissemination & Mrkt. Competencies								←	—	—	—	—	→								●			
7.2.6 Data/Information Competencies					←	—	—	—	—	→											●			
7.2.7 Communication Competencies						←	—	—	—	—	→										●			

TASK / TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	TALENT				
	19	70	19	71			19	72			19	73			19	74				C	D	SF	CC	E
7.2.8 Management/Supervision Competencies							←						→								●			
7.2.9 Intern Rating Instruments				←						→											●			
7.2.10 Interview Schedules				←					→												●	●	●	
7.2.11 Other Instruments					←						→									●	●			
7.3 Operations Analysis																								
7.3.1 Field Tests of Developments						←											→				●	●	●	
7.3.2 Operations Monitoring						←											→			●	●	●	●	
7.3.3 Special Analyses								←									→			●				
7.4 Output Analyses																								
7.4.1 Programs & System Evaluation									←								→			●	●			
7.4.2 Component Evaluation							←									→				●	●			
7.4.3 Student Evaluation								←									→			●		●	●	●
7.4.4 Employer Evaluation									←								→			●		●	●	●
7.5 Budget Analysis																								
7.5.1 Monitoring & Accounting			←														→			●				
7.5.2 Annual Reports & Budgets						←R→				←R→				←R→			←R→			●				
7.5.3 Cost/Effect Studies											←						→			●				
7.6 External Audits & Reviews						A				A				A						●				
TASK 8. IMPLEMENTATION PACKAGING																								
8.1 Implementation Package Design									←	→										●				
8.2 Implementation Package Development										←							→			●	●			

Vitae

PAUL D. HOOD
ASSOCIATE LABORATORY DIRECTOR FOR PROGRAMS, DIVISION II
FAR WEST LABORATORY FOR EDUCATIONAL RESEARCH AND DEVELOPMENT

Specialized professional competence

- Program and systems development in educational dissemination and information systems; design, development and implementation of training systems; research and evaluation in education and training; training simulation and training device development.

Representative R & D assignments at Far West Laboratory (since 1966)

- Director, Communication Program
- Organizer, Bay Area T.V. Consortium (Far West Laboratory, U.C. Berkeley Extension, KQED-TV, Oakland and San Francisco Unified School Districts) for purpose of developing a human relations training package.

Other professional experience

- Senior Staff Scientist, HumRRO; research in training and utilization of low aptitude personnel; development, validation and implementation of Army-wide NCO Leadership Preparation Program; development and implementation of Army Drill Sergeant Program; consultant on revision of Army Basic Training
- Director, Bomber Research Unit, U.S.A.F.; research on training, training stimulators and evaluation of B-52 aircrews
- Research Associate, Personnel Research Board, Ohio State University; measurement of crew coordination; research on aircrew composition, leadership, and survival training.

Academic background

- B.A. (1950) Franklin College, M.A. (1950) and Ph.D.(1953) Ohio State University. Degrees in Social Psychology.

Publications

- Reports in HumRRO publication series on training research, leadership development programs; reports in Air Force Personnel and Training Research Center (USAF -AFPTRC) series on aircrew training, performance effectiveness and survival training; Far West Laboratory publications on educational information systems; training and arrangements for educational. knowledge utilization.

Professional associations and honors

- Fellow, American Psychological Assn.; Fellow, American Sociological Assn.; American Educational Research Assn.; American Society for Information Science; Western Psychological Assn.

- The Society of Sigma Xi; Alpha Psi Delta (Grad. Psych. Honorary, Ohio State): University Scholar, Ohio State Univ., 1949-1950.

BELA H. BANATHY
DEPUTY DIRECTOR, DIVISION II
DIRECTOR, PLANNING, DESIGN AND SYSTEM APPLICATIONS PROGRAM

Specialized professional competence

- Systems analysis and design; development and evaluation of training programs and educational research; counseling psychology; communication sciences, linguistics, applied linguistics.

Representative R & D assignments

- Deputy Director, Communication Program; Design and Test Curriculum Information Systems and Educational Planning and Management Systems
- Defense Language Institute, Director, Language Division (1960-1969)
- Development and testing of generic models for foreign language training
- Designing generic models for testing foreign language aptitude and proficiency
- Designing faculty training program.

Other professional experience

- Designing, developing, and validating systems for leadership training (1959-1969)
- Analysis of training programs of school districts and other institutions
- Consultant to schools, training institutions, and development agencies
- Teaching professional courses and graduate seminars in education and systems design.

Academic background

- B.S. Hungarian Royal Academy (1940), M.A. San Jose State College (1963); Ed.D. University of California (1966).

Publications

- The common concept foreign language test (CTB, 1962); A design for leadership development (BSA, 1963); Instructional systems (Fearon Publications, 1968); The design and management of training: A systems approach (Boy Scouts World Bureau, 1969); Current trends in college curriculum: A systems approach (The Encyclopaedia Britannica, 1969); Systems and Education (San Jose State College, 1969); Systems development in guidance: A learning-task-centered-approach (O. E. Bureau of Research, 1969)
- Several articles published in professional journals.

Professional associations and honors

- AASA; AERA; MLA; Society for General Systems Research; National Task Force on Systems Education; Phi Delta Kappa; ASIS.

JOSEPH S. WARD,
SENIOR PROGRAM ASSOCIATE II
FAR WEST LABORATORY FOR EDUCATIONAL RESEARCH AND DEVELOPMENT

Specialized professional competence

- Program and systems development of training systems; research and evaluation in training simulation and training device development; research and evaluation of instructional methods.

Representative R & D assignments

- Senior Staff Scientist, HumRRO; Project Director for development of programs for combat skills, medical skills, and psychomotor skills; job analysis of combat skills; development of management of training course; consultant on evaluation of Army weapons systems, training techniques, and combat doctrine.

Other professional experience

- Faculty, Department of Psychology, Tulane University
- Faculty, Department of Education, Auburn University
- Faculty, Department of Psychology, Monterey Peninsula College.

Academic background

- B.A. (1949), M.A. (1958), Ph.D. (1962), degrees in Psychology, Tulane University.

Publications

- Motivational Properties of Frustration: II; Frustration Drive Stimulus and Frustration Reduction in Selective Learning, Journal of Experimental Psychology (1954), with A. Amsel; Frustration and Persistence: Resistance to Discrimination Following Prior Experience with the Discriminanda, with A. Amsel; Development and Evaluation of an Integrated Basic Combat/Advanced Individual Training Program for Medical Corpsmen (MOS 91A10) (HumRRO, 1970), with collaborators; Evaluating Proficiency in the Use and Maintenance of Infantry Weapons (Eighth Annual Army Human Factors Engineering Conference, 1962), with Thomas F. Nichols.

Professional Associations

- American Psychological Association; The Society of Sigma Xi.

FREEMAN F. ELZEY

Senior Research Associate, Lecturer in Education
San Francisco State College

EDUCATION

B. S.	San Francisco State College, in Psychology	1957
M. A.	San Francisco State College, in Psychology	1959

PROFESSIONAL EXPERIENCE

Research Assistant in Psychiatric Research, Mount Zion Hospital, San Francisco, 1956-58.

Research Positions at San Francisco State:

Research Associate in Mental Retardation, 1958-68; Research Associate in Project on Thinking in Elementary School Children, 1963-66; Co-director of Project to develop a Vocational Competence Scale for Mentally Retarded Adults, 1965-66; Co-director of Project to develop a Pre-School Social Competence Scale, 1965-66; Senior Research Associate directing Field Observation Staff of Sausalito Teacher Education Program, 1966-69; Research Director of Demonstration Project for Nursery School Cross Cultural Education, 1966-69; Research Director, Pre-School Project for Multiple Handicapped Children, 1969-71.

Lecturer in Education, San Francisco State College, 1967-71.

Consultant in Educational Research, Far West Laboratory for Educational Research and Development, Berkeley, California, 1971.

PROFESSIONAL ORGANIZATIONS

American Psychological Association; American Association on Mental Deficiency; American Educational Research Association; California Educational Research Association.

PUBLICATIONS

A Programmed Introduction to Statistics, Monterey, Brooks-Cole, 1971

A First Reader in Statistics, Monterey, Brooks-Cole, 1967

Business Statistics: A Programmed Introduction, Monterey, Brooks-Cole, 1971

A Programmed Introduction to Research (with S. Levine), Belmont, Ca. Wadsworth, 1970

A Programmed Introduction to Educational and Psychological Measurement (with S. Levine), Belmont, Ca., Wadsworth, 1970

ELAINE N. TAYLOR,
SENIOR RESEARCH SCIENTIST,
HUMAN RESOURCES RESEARCH ORGANIZATION
MONTEREY, CALIFORNIA

Specialized professional competence

. Research design and analysis of educational and training systems.

Representative R & D assignments

. Director, Design, Analysis, and Editing, Ft. Benning, Georgia.

Other Professional Experience

. Senior Research Scientist, performance of low aptitude personnel, U.S. Army;
. Senior Research Scientist, preparation of programmed instructional materials - NCO leadership course, U.S. Army.

Academic Background

. B.S. (1949) Physical Education, State University of Pennsylvania; M.A. (1951) Psychology, Bowling Green State University; Ph.D. (1954) Psychology, State University of Iowa.

Publications

. New evidence of a favorability effect upon scores on the Taylor Manifest Anxiety Scale (Iowa Academy of Science, 1953, with collaborators); Automation of a portion of NCO leadership preparatory training (HumRRO, 1966, with collaborators); Effects of aptitude (AFQT), job experience, and literacy on job performance (HumRRO, 1970, with collaborators); HumRRO Technical Reports on performance in Army jobs by men at different aptitude levels (1970); Procedures for evaluating mental health indirect service programs in schools (Montague E, and Taylor, E) HumRRO Technical Report (in press); other articles in field journals.

Professional Associations

. American Psychological Association; the Society of Sigma Xi.

CARL H. RITTENHOUSE, SENIOR RESEARCH PSYCHOLOGIST
EDUCATION RESEARCH PROGRAM
URBAN AND SOCIAL SYSTEMS DIVISION
STANFORD RESEARCH INSTITUTE

Specialized professional competence

- Group and individual performance research; functioning of large units as affected by organization and associated management and control systems; educational systems.

Representative research assignments at SRI (since 1959)

- Project leader, educational information utilization studies
- Project leader, technical manpower transferability study
- Project scientist, field experiments at the Research Office of the U. S. Army Combat Developments Command Experimentation Center, Fort Ord, California
- Project scientist, U. S. Army Concept Team in Vietnam.

Other professional experience

- Head, Training Group, Philco Corporation, Palo Alto, California
- Research scientist, U. S. Army Leadership Human Research Unit, Presidio of Monterey, California; conducted research in leadership, leadership training, and tactical and administrative decision-making.
- Research psychologist, U. S. Air Force Armament Systems Laboratory; worked in areas of perception and motor skills
- Research assistant in psychology of music, Stanford University

Academic background

- B.A. (1946), M.A. (1948), and Ph.D. (1952) in psychology, Stanford University, also studied at Wilson Teachers College, George Washington University, and Temple University.

Publications

- Articles in various technical journals.

Professional associations and honors

- American and Western Psychological Association; Phi Beta Kappa; Sigma Xi; Listed in American Men of Science and Who's Who in the West; certified psychologist in the state of California.

GEORGE HALLOWITZ
PROFESSOR OF EDUCATION
SAN FRANCISCO STATE COLLEGE

Specialized professional competence

- Research and teaching in education; study of administrative behavior research training programs; direction of community agencies.

Representative R & D assignments

- Theory oriented research into administrative behavior
- Development of research training programs

Other professional experience

- Director of camp, youth and community agencies
- Training director, Peace Corps and VISTA training at San Francisco State College
- Former chairman of committee on inter-disciplinary studies at San Francisco State College
- Executive secretary of Study Committee on Curriculum Review at San Francisco State College.

Academic background

- B.B.A., College of the City of New York (1934), M.S. in Social Work, Columbia University (1941), M.A. in Psychology, Southern Methodist University (1955), Ed.D., University of California, Berkeley (1959).

Publications

- "An Observation Instrument for Theory Oriented Research into Adm. Behavior." (Co-authors — Fibish and Hart), California Journal of Educational Research, November, 1963.

Professional associations and honors

- Association of State College Professors of Educ. Admin; Chairman-elect, Dept. of Educ. Admin., School of Education, San Francisco State College; Vice President, Academic Senate, San Francisco State College.

DR. ROBERT L. BENNETT
ASSISTANT TO CHANCELLOR FOR RESOURCE DEVELOPMENT & PROJECT COORDINATION
SAN MATEO COMMUNITY COLLEGE DISTRICT OFFICE

Specialized professional competence

- Development of educational programs; teaching; coordination and development of cooperative education; counseling.

Representative R & D assignments

- San Matec College District (1969 to present), district administrative staff for program development
- San Mateo College (1967 to 1969), coordinator-developer of cooperative education with a two year Ford Foundation grant, successfully completed and implemented in three colleges
- San Mateo High School District staff (1965 to 1967), research and innovation, Title III program, Educational Resources Center; and project consultant for development of the San Mateo County PACE Center.

Other professional experience

- High school counselor, Aragon High School, San Mateo, 1961-1965
- Instructor and counseling, Laurel High School, Laurel, Montana, 1957-1961.

Academic background

- B.A. (1950) Montana State College; M.S. (1959) Eastern Montana College; Ed.D. (1967) University of California.

Publications

- Identification of Secondary School Curriculum Strengths and Weaknesses through case study and senior sampling (Copyright 1967)
- Cooperative Education in the San Mateo Junior College District, A Two Year Demonstration Program in Community College Cooperative Education
- Cooperative Education Handbook
- Quality Assurance: Benchmarks, Techniques and Thoughts for the Future
- California Legislation Position Papers: SB 672 (Alquist) "Cooperative Work Experience Education in California", 1969. Legislation passed and now in operation; AB 1171 (Fong) "The Coordinated Instruction Systems in Community Colleges in California", prepared for the Calif. Jr. College Assn. and adopted in Executive Session. Legislation during 1970.

Professional associations and honors

- California Junior College Association; CROOTS Committee

CHARLES WEYNARD BAILEY
CONSULTANT IN SECONDARD EDUCATION
CALIFORNIA STATE DEPARTMENT OF EDUCATION

Specialized professional competence

- Project development for dissemination and innovation; school district supervision; university teaching.

Representative R & D assignments

- Development of dissemination projects on flexible scheduling; team teaching, non-grades school, oceanography.

Other professional experience

- School superintendent, Colton Joint Unified School District, 1966-1969
- Assistant superintendent and superintendent, Colton High School District, 1962-1966
- Teacher, principal and assistant superintendent, Colton Elementary School District, 1937-1959
- Instructor, University of Redlands.

Academic background

- B.A. (1936) University of Redlands; M.A. (1953) University of Redlands; Ed.D. (1958) University of Southern California.

Professional associations and honors

- American Association of School Administrators; California Association of School Administrators; Educare - University of Southern California; Phi Delta Kappa; Delta Epsilon.

JAMES A. DUNN,
DIRECTOR, CURRICULUM, GUIDANCE AND INDIVIDUAL PLANNING DIVISIONS
AMERICAN INSTITUTES FOR RESEARCH
PALO ALTO, CALIFORNIA

Specialized professional competence

- Concept formation, recognition, and utilization in children; effects of anxiety and stress on cognitive functioning; the teacher as stimulus agent in the classroom.

Representative R & D Assignments

- Program Director, Project PLAN, American Institutes for Research (1968-70).
- Director, Midwest Research Center for Pupil Personnel Services, University of Michigan (1964-67).
- Director, School Psychological Examiner Program, University of Michigan.

Other professional experience

- Visiting Fellow, Laboratory for Human Development, Harvard University.
- Assistant Professor of Psychology, and of Education, University of Michigan.

Academic Background

- B.S. (1954) Mathematics, Wayne University; M.A. (1959) Educational Psychology, Wayne State University; Ph.D. (1962) Education and Psychology, University of Michigan.

Publications

- *A comparative study of pupil construct systems relevant to classroom conditions and events* (U. of Michigan, 1962); *Dimensionality of the test anxiety scale for children* (Michigan Academy of Science, 1963); *Training and certification of midwestern pupil personnel workers* (U. of Michigan, 1967); *The PLAN instructional program: a systematic approach to curriculum development* (AERA, 1970); *Bias minimization in questionnaires* (with collaborators, in preparation).

- Many articles published in field journals.

Professional Associations and Honors

- USOE Senior Post-Doctoral Fellow, Harvard University; USPHS Fellow, University of Michigan; Horace E. Rackham Fellow, University of Michigan.

- American Psychological Association; American Educational Research Association.

JOHN S. HELMICK
VICE PRESIDENT, DIRECTOR WESTERN OFFICE
EDUCATIONAL TESTING SERVICE

Specialized professional competence

- Educational measurement, research, statistics, administration

Representative R & D assignments

- Program Director for the development of the Admission Test for Graduate Study in Business. Supervised development of materials for New York City first grade assessments, "Let's Look at Children."

Other Professional experience

- Instructor, Assistant Professor, University of California, L.A., and University of Hawaii. At ETS since 1952, Vice President since 1963. From 1963-68 responsible for ETS instructional programs including workshops for foreign students. Summer programs for graduate students in measurement, etc.

Academic Background

- B.S. (1940) Northwestern University, M.A. (1942) Wesleyan University, Ph.D. (1942) Stanford University. Degrees in Psychology.

Publications

- "Group factors in simple and discriminatory reaction time";* "Studies in motion sickness";* "Attempted pupillary conditioning at four stimulus intervals";* "Validity of test items for measuring learning specific to a course"; "Tests can predict success"; "Pursuit learning as affected by size of target and speed of rotation"; "A workbook for College Psychology"; "Reliability or variability"; "Piaget for first grade teachers."

Professional associations and honors

- American Psychological Association; American Educational Research Association; National Council on Measurement in Education; American Association for the Advancement of Science

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* Co-author

ROBERT K. MC MENAMIN, INSTRUCTIONAL TECHNOLOGIST
TECHNICON INFORMATION SYSTEMS

Specialized professional competence

- Analyses of real-world technological systems and origination of games and simulations that are part of special school curricula.
- Writer of teacher and student materials for innovative school programs.

Other professional experience

- Instructional Programmer. Conducted validation of instructional program for Personnel Data Systems.
- Prepared a task analysis, wrote objectives, performed S-R inventory for teaching points, and wrote and edited.
- Taught courses in Personnel Data Systems. Prepared audiovisual aids, developed curriculum, and wrote and edited student work books and study guides (USAF).

Academic background

- B.S education (history and social science major) (1964), Southeast Missouri State College, Cape Girardeau, Missouri; additional courses in Personnel Specialist, Technical Instructor, Personnel Management and Data Systems, Instructional Programming, and Effective Writing at Air Force schools.

PAUL D. EHRET

SUPERINTENDENT OF SCHOOLS
SAN LORENZO UNIFIED SCHOOL DISTRICT
SAN LORENZO, CALIFORNIA

A.B. University of California with major in Political Science and minor in English. M.A. University of California, in Educational Administration.

Graduate study: University of California; University of Chicago; Teachers College, Columbia University and University of Virginia.

Professional Experience:

1948 - Present - Superintendent of Schools, San Lorenzo Unified School Dist.
1946-1948 - Deputy County Superintendent of Schools, Alameda County
1941-1946 - Officer, U.S. Navy, Retired as Lt. Commander
1938-1941 - Teacher and Counselor, Berkeley, California, Unified School Dist.

Other Professional Experience:

Consultant, Alameda Unified School District
Consultant, Davis Unified School District

Past President:

California Association of School Administrators; Oakland Area Council, Boy Scouts of America; Oakland Area Community Chest

Past Chairman:

Financing Public Education State Committee, California Teachers Association - 8 years
California School Administrators State Cooperative Finance Committee - 3 years
California Association of School Administrators Annual Conference, 1968
Region XII Delegation to Boy Scout World Jamboree, Asagiri, Japan, 1971

Present Membership:

President, San Lorenzo Scholarship Foundation; President, Board of Trustees, Alameda County United Fund; Vice President, Bay Area United Crusade; Vice President, San Francisco Bay Area Council, Boy Scouts of America; Member, California Council on Public School Long Range Finance Planning; Member, State Council of Education, California Teachers Association; Member, American Association of School Adminstrators

Past Membership:

Member, Board of Directors, Association of California School Administrators; Member, Board of Governors, California Association of School Administrators; Member, Board of Directors, Alameda County Chapter, American Red Cross; Member, American Association of School Administrators Study Mission to the Soviet Union, 1959; Leader, American Association of School Administrators Study Mission to the Soviet Union, 1968

Agencies of the Consortium

FAR WEST LABORATORY FOR EDUCATIONAL RESEARCH AND DEVELOPMENT (FWL)

General Description

The Laboratory is a public non-profit organization supported largely by funds from the U.S. Office of Education, Department of Health, Education and Welfare.

Located in Berkeley, California, the Laboratory has a staff of more than 250, representing various disciplines in the behavioral and social sciences.

The Laboratory's principal objective is to bring the benefits of educational research and development into school classrooms at the earliest possible moment. By inventing, designing, developing and testing educational products, the Laboratory aims to increase the opportunities of all, children to learn. Development is organized into highly-focused programs conducted within major Program Divisions. Each of these programs carries out specific tasks of educational self-renewal.

Developmental Efforts

Program Division I creates inservice and preservice teacher-training materials including self-contained and self-evaluative "Minicourses" that instill or improve basic classroom skills. Microteaching and videotape feedback are combined to enhance teacher competencies which, in turn, generate greater pupil achievement. A Minicourse consists of a set of 16mm instructional and model films, plus handbooks, evaluation forms, orientation materials, follow-up activities, etc., for use with the school's own videotape or audiotape equipment. The behavioral changes in teachers who took the first Minicourses resulted in a nationwide demand for these products, so the Laboratory arranged for national distribution to enable all schools to purchase or rent the completed products. Teacher-training "protocol" materials are also produced by Division I in cooperation with Stanford's Center for Research and Development in Teaching.

Program Division II bridges part of the gap between educational R&D and actual school practices by developing training systems for improving decision-making by school personnel. Educational management training kits for mid-level administrators provide materials for inservice and preservice programs. Units being tested or under development include problem analysis, goal setting, deriving objectives, analyzing curriculum alternatives, planning program implementation, and management of instructional programs.

Another major effort of Program Division II is in educational planning, design, and system applications. This program will contribute to educational renewal through: systems design at local, regional, state, and federal levels of planning and management; transportable technologies and training programs in planning and design; analyses and reports on exemplary operations and arrangements; and instruments to assess planning and design capabilities.

The Consortium training program for development, dissemination and evaluation trainees in educational R&D is also managed within this Division.

Career Education is a major short-term Division II program which will terminate in August 1972. A number of feasibility studies have been conducted of an employer-based model for career education. An instructional system and curriculum for the model will provide 13-to 20-year old students with a total educational experience offered by a consortium of employers. It is one of four alternative models for career education being explored by the Office of Education.

Program Division III includes development of a responsive program for children ages 3 to 9. Professionals and paraprofessionals are trained to respond to children in Head Start and Follow Through classrooms so as to increase self-image and intellectual abilities. A Parent/Child Toy-Lending Library enables parents to educate their own 3- and 4-year-olds at home. Training and curricular materials are currently in use in many cities across the nation.

Program Division IV develops products that enable ethnic-minority children to cope with the existing society, yet be prepared to function in a pluralistic society. Ethnic heritage social-science curricular materials for grades 1-3 and teacher-training materials are being developed, along with parent involvement techniques.

The Utilization Division of the Laboratory encompasses two major efforts. One is the Educational Information Systems Program, which is designed to provide practitioners with current well-focused information about products and processes they can use in improving practice. The program is responsive to the felt needs of practitioners and allows them to affect both the design and operation of systems and products being produced. Information units of various types are made available through commercial and/or non-commercial channels. These information units present, in readable and useful formats, important trends, reports of new programs, and analyses of various kinds of educational innovations. Long-term impact will be generated through the development of large-scale information systems of local, regional, and national scope.

The General Dissemination Program, also in the Utilization Division, has two major responsibilities. First, it maintains and strengthens two-way communications between the Laboratory and the many publics that the staff must serve. Second, it arranges for and monitors the distribution, installation, and utilization of completed Laboratory products and processes once they have completed the final steps of its rigorous development and testing cycle.

HUMAN RESOURCES RESEARCH ORGANIZATION (HumRRO)

General Description

The Human Resources Research Organization (HumRRO) is a non-profit research and development corporation. Its general purpose is to improve human performance, particularly in organizational settings, through behavioral and social science research, development, and consultation. In pursuit of this general objective, HumRRO has conducted research and development on specific training and educational problems; generated innovations in training technology; developed and evaluated educational and training programs; conducted training device requirements studies; and has carried out numerous leadership and motivation studies.

HumRRO is organized into seven research divisions. Two of the divisions are located at the HumRRO central office in Alexandria, Virginia; the remaining five divisions are located in the States of Texas, Kentucky, Georgia, Alabama, and California.

The HumRRO research staff is comprised primarily of psychologists with research background in experimental, social, measurement, educational, and clinical fields, together with some persons with advanced degrees in sociology and linguistics. Specialists in computer technology, engineering, publications, and graphics play an integral part in the total research process. Personnel with training and experience in research management, law, accounting, and office skills also support the work of the organization. In addition, a number of technicians who have first-hand experience with various man-machine, training, and personnel management systems are employed.

The Human Resources Research Organization has a wide variety of facilities for conducting behavioral and social science research and development. These facilities are located at the central office and at the various research divisions and can be utilized to support specific projects as required.

Relevant Efforts

The Human Resources Research Organization has conducted numerous studies involving task and skill analyses of operator jobs and training system development to support those jobs. These have ranged from jobs that are heavily centered in hardware systems to those that are essentially non-hardware centered.

The HumRRO divisions in Texas and California determined in recent efforts that to train men to perform procedural tasks, the fidelity of training devices can be low with no adverse effect on training time, level of proficiency, amount remembered over time, or time to retrain.

Computer assisted instruction, the largest single research effort in HumRRO at the present time, has substantial potential for significant breakthroughs in training technology. An integrated staff of specialists in psychology, mathematics, instructional programming and computer software and hardware has been at work on the development of this technology. A variety of research and development activities are carried out for non-Army sponsors such as school districts and educational centers.

In most HumRRO studies of course development, a systematic approach is followed which involves: (1) human factors analysis of the man-machine or other system; (2) in-depth task and skill analysis of particular job or duty positions within the system; (3) determination of skill and knowledge requirements and performance levels; (4) study of trainee population characteristics; (5) determination of training program content and device requirements, as well as training media selections; (6) development of human performance and system performance measures; and (7) experiemental validation and cost-effectiveness assessment of the training program.

The HumRRO division which has become a unit of the consortium is located on the West Coast at the Presidio of Montery, California. It has been involved in a variety of studies over the years dealing with training technology, occupational training, and evaluation of programs.

STANFORD RESEARCH INSTITUTE (SRI)

General Description

Stanford Research Institute, a nonprofit corporation with a permanent staff of approximately 2,800, provides contract research to governments, foundations, industry and business in the United States and abroad. The basic operational unit of SRI is a problem-oriented laboratory, group or program, of which there are approximately 150. In addition, consultants and subcontractors are retained whenever their capabilities will effectively augment those of the Institute staff. Educational research, systems analysis, and information system development and evaluation are major areas of work at Stanford Research Institute. All are approached on an inter-disciplinary basis drawing on broad capabilities from many parts of the Institute.

Relevant Efforts

The Education Research Group, composed of psychologists who have had extensive experience in questionnaire design, survey research, and interview studies in the field of education and in other substantive areas. Its members also have been active in the development and evaluation of educational research and training programs.

The Educational Policy Research Center, established by the U.S. Office of Education in March 1968 at SRI for the purpose of providing educational policy makers at all levels with relevant information and techniques for decision making. The Center is funded under Title IV of the Elementary and Secondary Education Act (PL 89-10), which provides federal aid for research, training, and dissemination projects.

Study of the Requirements for the Products and Services of the National Center for Education Statistics. This study focuses on the information needs and requirements of a wide variety of users, including educational practitioners at all levels, government and research personnel, publishers and many segments of industry.

Management and Organizational Development Program. This program is staffed by professionals representing business administration, personnel management, psychology and sociology. It conducts research on changing manpower and training requirements and on new, more effective training programs for use in private industry and government.

The Stanford Research Institute has completed the following relevant projects in education:

1. Two studies sponsored by the Far West Laboratory:
   (a) Literature Survey of the Use of Educational Resource Material and the Decision Processes Associated with Educational Innovation.
   (b) A Survey of the Decision Processes and Information Needs in Education.
2. An Interpretive Study of Educational Research and Development Findings Concerning the Use of Paraprofessional Aides in Teaching and Administration.
3. Problems and Information Needs of Educational Practitioners, a study providing guidance in the selection of future topics for interpretive studies.
4. Planning for Education and Manpower in Micronesia. SRI assisted the government of the Trust Territory of the Pacific Islands in long-range planning for educational and manpower development in the Trust Territory.
5. Planning of Educational Centers for the Development of Manpower in Highway Safety. This study was conducted for the National Highway Safety Bureau, Department of Transportation. It established prototype curricula for the training of highway safety manpower in several specialties, and programs also for the development of research manpower in highway safety. Cost effectiveness was determined at university-based regional centers for the conduct of such programs on a nationwide basis.

AMERICAN INSTITUTES FOR RESEARCH (AIR)

General Description

American Institutes for Research is a non-profit educational and scientific research organization engaged in research and service in the behavioral, social, and educational science areas. In the last 25 years, AIR has completed more than 800 projects, largely funded by the federal government, in the educational and behavioral science fields. Research offices are maintained in Silver Springs, Maryland; Pittsburgh, Pennsylvania; Palo Alto, California; Kensington, Maryland; and Bangkok, Thailand.

The Palo Alto office facilitates AIR project work in the western United States, and is organized into three institutes. Supporting these institutes is the AIR library, the holdings of which include over 1,200 books and approximately 4,500 research reports from governments, military, educational, and private research resources. Additionally, the library subscribes annually to more than 300 journals, periodicals, and newsletters. A satellite Instructional Materials Center houses approximately 6,500 textbooks, teachers' guides, workbooks, over 1,000 curriculum guides, 500 film strips, and more than 300 study kits, SRA labs, mathematics games and audio records.

AIR data-processing facilties include several programmable desk-top computers and remote access terminals for computer installations at Stanford University and with private computer service firms.

Relevant Efforts

The Institues and attendant programs within the Palo Alto office are:

Institute for Behavioral Research, which applies behavioral technology to social, educational and training problems.

1. Social and educational research program applies research and development skills to top priority societal problems including educational improvement, population planning, information use, and citizen participation.

2. Instructional methods program engages in research of new instructional media; development of multimedia instructional courses; individual and task variables in training and education; applications of systems analysis; educational evaluation; and vocational education.

Institute for Research in Education, which conducts research on educational systems. It measures aptitute, achievement, and interest and develops psychometric and statistical methodologies.

1. Project Talent, a longitudinal study of a representative national sample of secondary school students, with followup into their adult lives.

2. Project Talent Data Bank enables researchers to utilize the large body of data amassed by Project Talent for their own research in the fields of education, psychology, sociology, economics, and other behavioral and social sciences.

3. Career Education Program is concerned with the educational experiences, especially at the post-secondary level, that help or hinder students in preparing for successful work in their chosen careers.

4. Psychometric and Educational Research Program focuses on substantive and methodological research in the fields of education, measurement and evaluation, and individual differences.

Institute for Individual Educational Development. The third institute develops and evaluates the effectiveness of individualized educational programs.

1. Developmental Systems Program focuses on the design, development, and implementation of interactive systems for the analysis of educational problems, the individualization of instruction, and the evaluation of educational programs.

A new activity is currently being pilot tested--the retraining of unemployed aerospace workers for careers in educational D,D&E using an in-service approach and materials developed for and by the Far West Consortium.

2. Evaluation and Research Program, concerned with evaluation and research related to educational systems design, evaluation of educational products and programs, and the development of educational and psychological measurement techniques.

3. Educational Processes Research Program focuses on the study of the components involved in educational programs and their interactions to produce effective results consistent with the criterion objectives.

4. Guidance Research Program, concerned with research and evaluation to improve youth development, guidance, and counseling systems and training programs for counseling personnel.

One of the major activities of the Institute for Educational Development in the last few years has been the development of a large scale individualized educational program involving extensive information regarding the world of work, educational and skill requirements for various occupations and long range goal formulation and career planning for all secondary level students. Project PLAN is currently in use on an experimental basis with students in 75 school buildings distributed across the nation.

EDUCATIONAL TESTING SERVICE (ETS)

General Description

Educational Testing Service is a nonprofit organization devoted to measurement and research in education. Since its establishment in 1947, ETS has developed many new tests and services, has made substantial contributions to research, and has provided extensive advisory assistance to educators and other test users. The main office of ETS is in Princeton, New Jersey. The Western Office, in Berkeley, California, facilitates ETS services to the western states and Pacific areas.

Relevant Efforts

Educational Testing Service emphasizes four major areas of activity: research, development, programs of measurement, and advisory and instructional programs. The aims in each area are summarized below.

Research. To conduct research on measurement theory and on teaching and learning in order to increase knowledge of the characteristics of learners, of their environments, of educational processes, and particularly of the results produced by the interaction of all these factors.

Development. To create new or improved measures, to explore their descriptive or predictive properties, to make such measures available to educators, and to develop systems for the use of these instruments as aids in guidance, selection, instruction, and evaluation.

Programs of Measurement. On the basis of research and development, to initiate, conduct, and improve practical programs of measurement and related services as these are required by educational institutions and systems.

Advisory and Instructional Programs. To provide advisory, consultative, and instructional services to help educators and educational research workers increase their competence in the application of measurement principles and techniques.

These four areas of activity are, of course, overlapping and interdependent.

The research efforts of ETS are organized in four divisions. The Division of Psychological Studies conducts research in human development, learning and cognition, personality and social behavior, and psychological measurement. The Developmental Research Division carries out projects that focus on early education, individual development, guidance, teacher behavior, higher education, and educational technology. Formed in recognition of the need for increasingly sophisticated mathematical and statistical techniques for analyzing research data, the Division of Computation Sciences serves ETS as a resource on computer technology and statistical procedures and conducts research in the areas of systems theory and multivariate analysis. The Division of Educational Studies is concerned with analyzing the functioning of educational systems and evaluating the effectiveness of educational programs.

TECHNICON MEDICAL INFORMATION SYSTEMS CORPORATION (TIS)

General Description

The Technicon Corporation of Tarrytown, New York, develops automation for medical and scientific laboratories and industry. It has recently been active in developing a variety of new technological products, including air-pollution and water-pollution monitoring instruments and devices. Technicon Corporation has engaged in worldwide educational programs, seminars, and symposia, and has explored ever-widening applications of automated technology. The Technicon International Congress on "Advances in Automated Analysis" in New York was attended by more than 5,000 scientists from all over the world. This was the largest, most comprehensive meeting ever held concerned solely with automated analysis. In 1970 Technicon also organized highly successful symposia in Germany, Japan, France, Holland, Australia, and South Africa. Technicon's operations are being carried on in Australia, Belgium, Canada, Denmark, England, France, W. Germany, Holland, Ireland, Italy, Japan, Spain, South Africa, and Switzerland. The western U.S. offices are in Mountain View, California.

Relevant Efforts

In May 1971, Technicon Corporation acquired Lockheed Education Systems -- as part of an acquisition of Lockheed Information Systems -- from the Lockheed Aircraft Corporation. The DRUG DECISION program was included in the acquisition. Key specialists who developed the first three editions of DRUG DECISION participated in preparation of a newly formatted fourth edition of the program which was published by Technicon Education Systems for use in the 1971 fall school term. Technicon Education Systems intends to continue to develop and market other innovative educational products.

SAN FRANCISCO STATE COLLEGE (SFS)

General Description

San Francisco State College is a unit of the California State College System. The College has a number of graduate programs of which provide the kinds of strengths needed for conducting the Consortium's graduate training. Programs leading to the master's degree are offered in the following fields: anthropology, economics, geography, history, international relations, political science, psychology, social science, sociology, business administration, art, creative arts, drama, industrial arts, music, radio-television-film, early childhood education, elementary education, secondary education, education of exceptional children, counseling, rehabilitation counseling, educational administration, home economics education, education with concentration in special interest area, literature, language arts, creative writing, English as a foreign language, speech, French, German, Spanish, humanities, philosophy, biology, chemistry, mathematics, physical science, physics, physical education, and recreation.

In the Fall of 1969, approximately 18,000 students were enrolled at the College. The College Library contains approximately 300,000 volumes and receives regularly more than 2,500 periodicals. It is a depository for the publications of the United States Government as well as for those of the State of California. The Education Library receives all of the major journals in education, educational research, psychology, and related fields. The library maintains an efficient interlibrary loan system with the other state colleges, the University of California, and Stanford University.

The School of Education Building and the Psychology Building offer excellent facilities for seminar training. Both buildings, in addition to the Audio-Visual Center, contain equipment and laboratories in which training for educational research and educational research activities can be carried on. The School of Education has its own Center for Educational Technology and the Psychology Building has a well-equipped Experimental Classroom.

Relevant Efforts

The emphasis of the College on training students who can translate knowledge and research into practice makes the College an excellent training center. The master's degree programs are highly developed. The School of Education, serving over 2,000 students, has one of the largest staffs in the region, 163 positions. The Interdisciplinary Studies Center in the School of Education currently offers courses to prepare educational researchers and serves as a nucleus for integrating the contribution from other disciplines to educational research. Between September 1965 and August 1966 the Center offered approximately ten sections of the Seminar in Educational Research (Ed 208.1) each semester, and three more in the summer, and this served a total of about 400 students during the one-year period. The Advanced Seminar in Educational Research (Ed 208.2) enrolled approximately seven students each semester.

Members of the School of Education faculty are engaged in research, training and development projects which are supported by Federal, state, local and private funds.

San Francisco State College is a major associate institution of the Research and Development Center which was recently established at Stanford University with the support of a U.S. Office of Education grant. Representatives of the College have also participated extensively in planning the Far West Laboratory for Educational Research and Development. Both the Stanford Center and the Laboratory will add to the requirements for trained research personnel and may also provide internship opportunities for trainees in the proposed program.

Near the close of the 1970-71 academic year the following courses comprise a curriculum relevant to the training of educational D,D&E personnel: (3 credit hours except as noted)

- Seminar in Educational Research
- Advanced Seminar in Education Research
- Evaluation for Teachers (1 to 3 credit hours)
- Evaluation in Education
- Evaluation of Instructional Programs
- Statistical Methods in Education
- Seminar in Educational Statistics and Data Processing
- Advanced Seminar in Educational Statistics and Data Processing

SAN MATEO COMMUNITY COLLEGE DISTRICT (SMCC)

General Description

Cañada College, College of San Mateo and Skyline College of the San Mateo Community College District--California public community colleges--enroll a total of 26,500 students with average daily attendance of 13,152. It is located in the San Francisco Bay Region thirty miles south of San Francisco. The Bay Region population is in the range of 2.5 million people with 600,000 located in San Mateo County--the service area of these three colleges.

Relevant Effort

The San Mateo Community College District has designed, developed and implemented, in cooperation with business and industrial agencies[16] what is called the Cooperative Education Program. The program provides students with off-campus educational work experience in a technical, business or professional setting. Three plans provide regular work experience related to college studies and career goals of students. Alternate Semesters: Two students hold one full-time work station on a year-round basis. During each semester one student is in school while the other works full time. Parallel Plan: Students hold part-time, afternoon and evening, or swing shift jobs with appropriate college class loads. Evening College New Careers: Special arrangements are made for studies related to full-time employment and new career goals of students. The Cooperative plan is now in use in more than 75 colleges throughout the United States.

Other characteristics of this program are:

Students may transfer to upper division colleges and universities on the same basis as in other programs of instruction.

Students gain a deeper understanding of the relationship between classroom theory and practical application.

Community involvement through direct experience adds a new dimension to the educational process.

College is more attractive to many students because of the combination of work and study.

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[16] Some participants in this cooperative effort are: Bank of America, Cal West Electric, General Electric, IBM, Lockheed Missiles & Space Co., Memorex, Micro-Miniature, Owens-Illinois, Pacific Coast Stock Exchange, Pacific Telephone, Palo Alto Times, Pan-American Airways, J.C. Penney, Philco-Ford, Sears Roebuck, Shell Data Service Center, Southwestern Publishing, Standard Oil, City, County and Federal agencies, VISTA and many others.

> Productive employment under realistic competitive conditions in a real-life, adult-dominated environment provides students with insights that enrich their educational experience.
>
> Improved employment opportunities are available to graduates as a result of industrial internship experience.
>
> Industry is provided a method for obtaining highly motivated, responsible employees on a regular full-time or part-time basis.
>
> Experience shows that 50-75% of Co-op students remain with their employers after graduating.

One phase of the Cooperative program called New Careers through Cooperative Education aims to provide evening college instruction at convenient times and places for employed workers to participate. Career-related on-the-job work experience strengthens the educational process through practical application of classroom theory. The opportunity to earn intermediate certificates and the Associate in Arts degree opens the door to advancement with present employers or transfer to other jobs. Credit for Cooperative field experience is included in the program.

Cooperating Agencies

Merritt College, Oakland, California (MC)

Peralta Junior College District, of which Merritt College is a part, serves an estimated population of about 650,000 in northern Alameda County on the East Bay side of San Francisco Bay. The total student population in the four Peralta colleges is about 27,700, the full-time equivalent of about 19,000. The district includes Laney College in downtown Oakland; Alameda College in the city of Alameda; Grove Street College on the Oakland-Berkeley border (the former Merritt campus); and Merritt College on a new campus in the East Oakland hills. Through a reciprocal agreement with the county of Plumas in the Sierra Nevada foothills, and annexation to the Peralta District for purposes of junior colleges, the Feather River Junior College in Quincy is also a part of Peralta District.

Merritt College serves at the present time 5,600 students in grades 13-14 and another 2,000 in ungraded classes. It is accredited for all courses and programs offered. Like the other Peralta colleges Merritt will eventually be comprehensive in that it will offer a wide range of programs including both occupational and liberal arts.

Merritt College operates two community Development Centers, one in East Oakland and one in North Oakland; Laney has two more such centers in East and West Oakland. The Trade-Technical Division and a child care center for children of students are both under the auspices of Merritt College. Alameda College operates an Aeronautics facility. All instruction in the colleges is focused on the needs of the community. Through a planned program of placement, coordination, and conferences with business, industrial and community service organizations, the instructional program is kept current, and the latest information on occupational requirements is made available to students. Courses of study are developed in close coordination with a number of business associations and community agencies. Advisory committees, with representation from management and labor, advise on the organization and operation of various occupational programs. A wide variety of occupational preparation is offered at the paraprofessional level, as are trade and technical apprenticeships and pre-apprenticeships.

Contra Costa College, San Pablo, California (CCC)

Contra Costa College is one of two institutions in the Contra Costa County Junior College District. This community college serves mainly residents of Richmond, San Pablo, and other East Bay communities of the western section of the county bordering San Francisco Bay. Its sister college, Mt. Diablo in Concord, serves mainly inland suburban communities.

The college is accredited by the Western Association of Schools and Colleges. Courses paralleling university and college work are accepted by the University of California, the California State Colleges and others. The college grants credit, within certain limitations, for successful employment or organized instruction related to employment experience. It awards the degrees of Associate of Arts and Associate in Science.

Advisory committees from the community keep the college informed of the most up-to-date practices in business and industry.

Contra Costa College provides AA credit for courses given at the Far West Laboratory for CEP trainees.

Concentrated Employment Program, Richmond, California (CEP)

The Concentrated Employment Program, funded by the Department of Labor and sponsored by and located in the City of Richmond, is a concentration of all Federal Manpower Programs. Its efforts are designed to attack the unemployment and underemployment problems of the disadvantaged in ghetto and rural areas. The CEP staff seeks and recruits individuals residing in the target area who most need work or training, and provides classes to bring those individuals up to grade level in their chosen fields. To be enrolled individuals must be in the low-income bracket, head of household, interested in a field of study or profession and willing to undergo academic study in that field. While attending CEP, individuals receive medical and dental care, child care, legal aid, transportation, and counseling, so that problems in those areas will not prevent them from accomplishing their goals. When a trainee is ready he is referred to a job by the CEP staff, which works closely with local businessmen and labor groups to line up specific job opportunities.

CEP sponsors interested trainees for the Consortium program and provides for them the services mentioned.

Sullivan Associates, Menlo Park, California (SA)

Sullivan Associates is a developer of programmed educational products for elementary through senior high schools. It is best known for the widely used Sullivan Reading and Sullivan Mathematics, and has also produced Sullivan Social Science and Spelling. The products receive national distribution. The firm is a wholly-owned subsidiary of Behavioral Research Laboratory in Palo Alto, California. SA supports a Consortium internship professional.

Berkeley Public Schools, Berkeley, California

This unified school district provides some students, and services such as counseling for those students.

APPENDICES

APPENDIX A

INITIAL TIME, TASK AND TALENT SCHEDULE[1]

The following four pages present TTT Schedules (Time, Task and Talent Schedules) outlining the tasks and subtasks to be undertaken and estimating the probable start, duration, and termination of each. Consideration was given to such factors as the need for reporting, contingencies between activities, lead times, project work leads, and time and funding constraints. Rough PERT networks have been used to test contingencies between tasks and to estimate schedule times. The TTT Schedule was selected, in preference to a PERT network, as a more compact and comprehensible display.

Solid lines between arrows indicate the most probable time for the activity. Intermittent lines indicate continuous or frequently recurring activity. Termination events are designated by the letters:

D= completion of detailed design specifications

P= completion of prototype

V= completion of validation test, and development of "main form" (Complete development would, in our view, call for operational tests at other sites followed by refinement of a "release form.")

Time periods are indicated in quarters of a year from the start of the design phase.

At the extreme right the organizational TALENT responsible for each task is indicated by dots in columns headed:

C- Consortium Management (Consortium Board of Directors and Planning and Managements Staff)

D- Developers (FWL, AIR, ETS, HumRRO, SRI, TIS

SF- San Francisco State College

SMCC- San Mateo Community College District

E- Employers

Two levels of training programs are scheduled: the Paraprofessional Programs (AA degree and continuing education), and the Entry-level Professional Programs (M.A. degree and continuing education). Course development (Task 3.2) for these two program levels is slightly different in its scheduling; hence, each course is separately identified as EP

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[1] Initial schedule from FWLERD, Design of a Functional Competence Training Program for D,D&E Personnel at Professional and Paraprofessional Levels in Education, 12/15/70. (Submitted on behalf of the Far West Consortium for D,D&E Training.)

(entry-level professional program) or PP (paraprofessional program). Courses identified as AP (advanced professional) are scheduled, but development will be undertaken only if additional funds become available (Tasks 3.2.11, 3.2.14, and 3.2.16) and the associated instrument development (Task 6.2.8) also will not be undertaken unless additional funds become available.

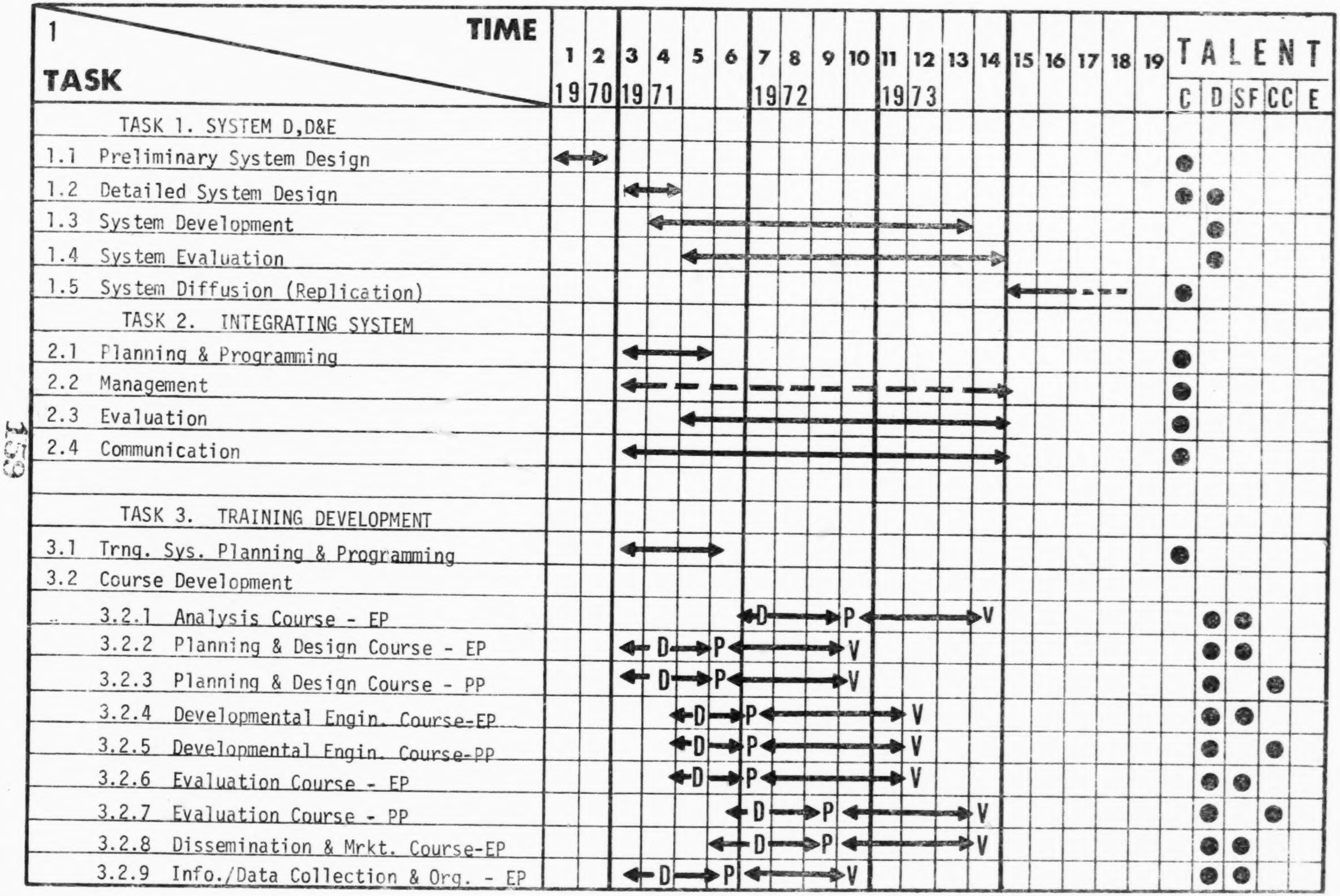
The dots under the talent columns identify agencies having a major responsibility for the accomplishment of the listed tasks. For instance, Task 1.2 Detailed System Design was one of the earliest tasks to be initiated in the operational phase (February 1, 1971). The Consortium (C), including management staff and representatives of all member agencies worked with developers (D), including the Far West Laboratory as prime contractor and subcontractors in preparing the detailed system design.

Responsibility for the Integrating System (Task 3) is primarily that of the Consortium (staff and board).

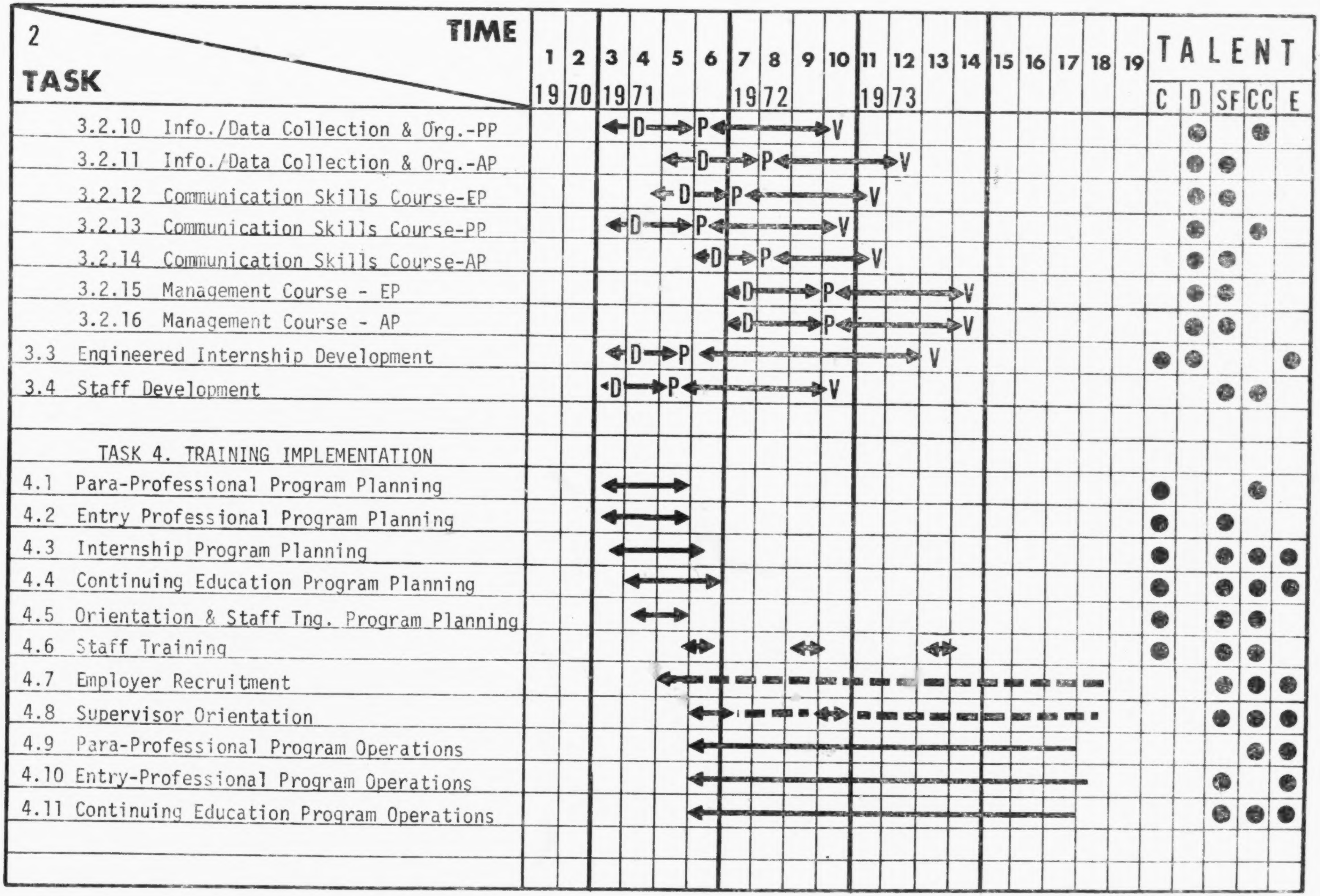
Training Development involves developers (D) with the staffs of San Francisco State (SF) if the course is entry-level professional (EP); or with the staff of the San Mateo Community College District (SMCC) if the course is paraprofessional (PP). Generally design is a joint effort. Learning episodes and modules that may be adapted from existing materials may be assigned to college staff for preparation. Those requiring extensive development may be assigned to contracting development agency staff. Operational testing is a joint effort with the college staff conducting training and the development staff aiding in conduct of assessment activities. Wherever possible at least two developers are involved in working on the same course in an effort to compensate for differences in perspective. This will sometimes be accomplished by assigning development of the corresponding assessment instruments (Task 7.2) to a different subcontractor.

The employer group includes all agencies or educational institutions providing engineered internship positions, participating in support of the Continuing Education Programs, or hiring graduates of the degree programs. These employers are important participants in Tasks 3.3, 4.3, 4.4, 4.7 to 4.11, 5.4, 6.2, 6.3, 6.4, 7.4.3, and 7.4.4.

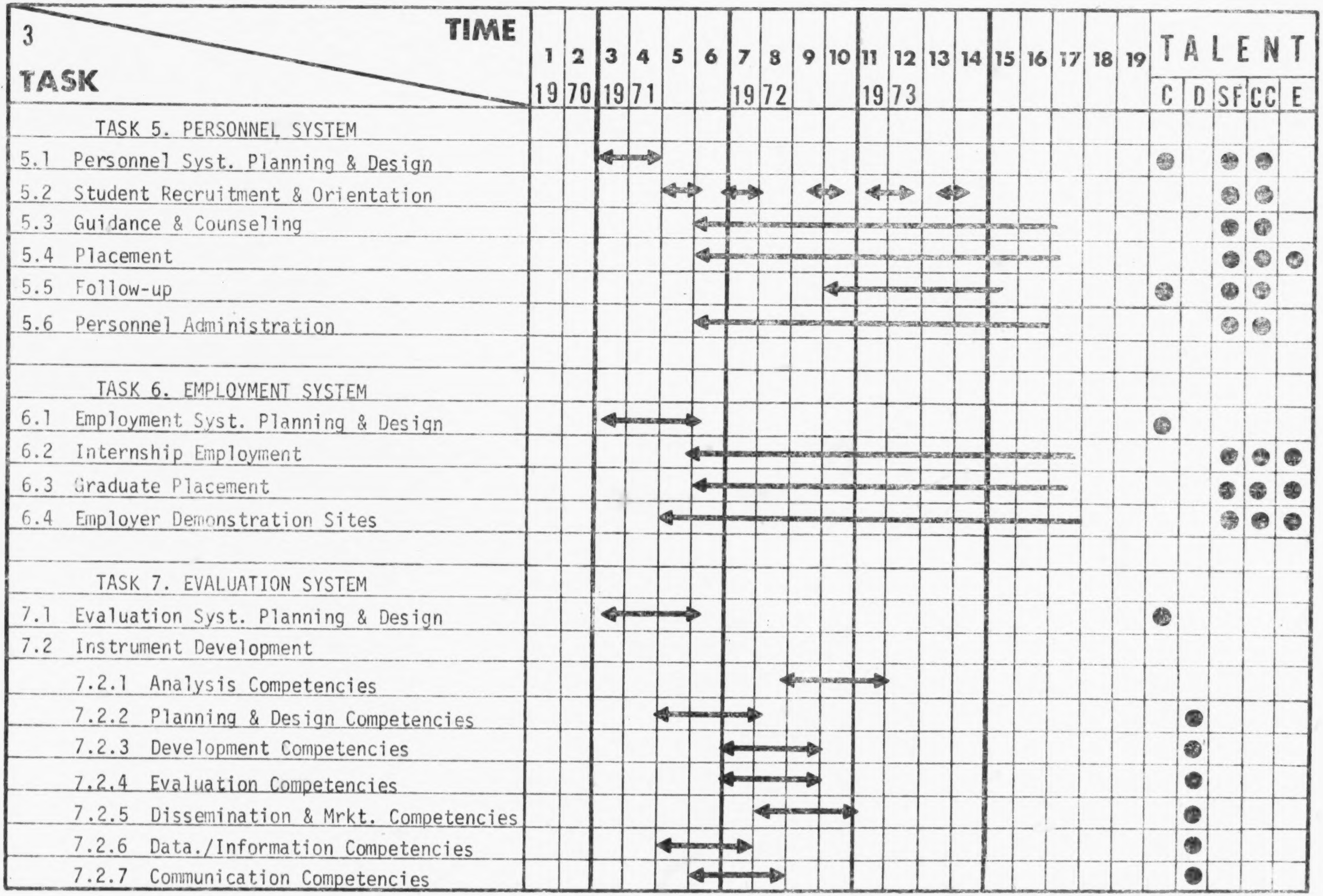
INITIAL TIME, TASK AND TALENT SCHEDULE: FUNCTIONAL COMPENTENCE D,D&E TRAINING MODEL



TASK	C	D	SF	CC	E
TASK 1. SYSTEM D,D&E					
1.1 Preliminary System Design	●				
1.2 Detailed System Design	●	●			
1.3 System Development		●			
1.4 System Evaluation		●			
1.5 System Diffusion (Replication)	●				
TASK 2. INTEGRATING SYSTEM					
2.1 Planning & Programming	●				
2.2 Management	●				
2.3 Evaluation	●				
2.4 Communication	●				
TASK 3. TRAINING DEVELOPMENT					
3.1 Trng. Sys. Planning & Programming	●				
3.2 Course Development					
3.2.1 Analysis Course - EP		●	●		
3.2.2 Planning & Design Course - EP		●	●		
3.2.3 Planning & Design Course - PP		●		●	
3.2.4 Developmental Engin. Course-EP		●	●		
3.2.5 Developmental Engin. Course-PP		●		●	
3.2.6 Evaluation Course - EP		●	●		
3.2.7 Evaluation Course - PP		●		●	
3.2.8 Dissemination & Mrkt. Course-EP		●	●		
3.2.9 Info./Data Collection & Org. - EP		●	●		



2 TASK / TIME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	TALENT C	D	SF	CC	E
	19	70	19	71			19	72			19	73												
3.2.10 Info./Data Collection & Org.-PP				D		P				V											●		●	
3.2.11 Info./Data Collection & Org.-AP						D		P				V									●	●		
3.2.12 Communication Skills Course-EP					D		P				V										●	●		
3.2.13 Communication Skills Course-PP				D		P				V											●		●	
3.2.14 Communication Skills Course-AP						D		P			V										●	●		
3.2.15 Management Course - EP							D			P				V							●	●		
3.2.16 Management Course - AP							D			P				V							●	●		
3.3 Engineered Internship Development				D	P								V							●	●			●
3.4 Staff Development			D		P					V												●	●	
TASK 4. TRAINING IMPLEMENTATION																								
4.1 Para-Professional Program Planning																				●			●	
4.2 Entry Professional Program Planning																				●		●		
4.3 Internship Program Planning																				●		●	●	●
4.4 Continuing Education Program Planning																				●		●	●	●
4.5 Orientation & Staff Tng. Program Planning																				●		●	●	
4.6 Staff Training																				●		●	●	
4.7 Employer Recruitment																						●	●	●
4.8 Supervisor Orientation																						●	●	●
4.9 Para-Professional Program Operations																							●	●
4.10 Entry-Professional Program Operations																						●		●
4.11 Continuing Education Program Operations																						●	●	●


3
TIME
TASK
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
1970
1971
1972
1973
TALENT
C D SF CC E
TASK 5. PERSONNEL SYSTEM
5.1 Personnel Syst. Planning & Design
5.2 Student Recruitment & Orientation
5.3 Guidance & Counseling
5.4 Placement
5.5 Follow-up
5.6 Personnel Administration
TASK 6. EMPLOYMENT SYSTEM
6.1 Employment Syst. Planning & Design
6.2 Internship Employment
6.3 Graduate Placement
6.4 Employer Demonstration Sites
TASK 7. EVALUATION SYSTEM
7.1 Evaluation Syst. Planning & Design
7.2 Instrument Development
7.2.1 Analysis Competencies
7.2.2 Planning & Design Competencies
7.2.3 Development Competencies
7.2.4 Evaluation Competencies
7.2.5 Dissemination & Mrkt. Competencies
7.2.6 Data./Information Competencies
7.2.7 Communication Competencies

4 TIME TASK	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	TALENT				
	19	70	19	71			19	72			19	73								C	D	SF	CC	E
7.2.8 Management/Supervision Competencies							↔	↔	↔	↔											●			
7.2.9 Intern Rating Instruments					↔	↔	↔														●			
7.2.10 Interview Schedules					↔	↔															●	●	●	
7.2.11 Other Instruments					↔	↔	↔	↔												●	●			
7.3 Operations Analysis																								
7.3.1 Field Tests of Developments						↔	↔	↔	↔	↔	↔	↔	↔	↔							●	●	●	
7.3.2 Operations Monitoring						↔	↔	↔	↔	↔	↔	↔	↔	↔						●	●	●	●	
7.3.3 Special Analyses								↔	↔	↔	↔	↔	↔	↔						●				
7.4 Output Analyses																								
7.4.1 Programs & System Evaluation								↔	↔	↔	↔	↔	↔	↔						●	●			
7.4.2 Componet Evaluation							↔	↔	↔	↔	↔	↔	↔							●	●			
7.4.3 Student Evaluation							↔	↔	↔	↔	↔	↔	↔	↔						●		●	●	●
7.4.4 Employer Evaluation									↔	↔	↔	↔	↔	↔						●		●	●	●
7.5 Budget Analysis																								
7.5.1 Monitoring & Accounting			↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔						●				
7.5.2 Annual Reports & Budgets						R				R				R						●				
7.5.3 Cost/EFFECT Studies											↔	↔	↔	↔						●				
7.6 External Audits & Reviews						A				A				A						●				
TASK 8. IMPLEMENTATION PACKAGING																								
8.1 Implementation Package Design									↔	↔										●				
8.2 Implementation Package Development										↔	↔	↔	↔	↔						●	●			

APPENDIX B

SURVEY OF FAR WEST LABORATORY TRAINING REQUIREMENTS *

Sample Following interviews with the development program directors and pilot tests of a questionnaire instrument, a survey of employees with six months or more work experience was conducted in late January and early February, 1971. To reduce the work load on respondents, a stratified random sample of approximately one-third of the employees in salary ranges 1-4 and one half of those in ranges 5-7, 8-10, 11-13, and 14+ were sent questionnaires. Sixty-five questionnaires were sent and fifty-nine completed questionnaires were received (91% return rate). The high rate of return and large sampling fractions combine to provide excellent estimates for the reported data. The standard errors for weighted averages of percentages over the five salary ranges are usually 1 or 2%.

Education and Experience Approximately 20% of the staff (with 6 months plus Laboratory employment) hold doctoral degrees, 18% have masters, 33% have bachelors and 28% have less than a bachelors degree.

Table 1

Education and Work Experience of Far West Laboratory Employees With

Six Months or More Service

Salary Level:	1 - 4	5 - 7	8 - 10	11 - 13	14+		
Education	%	%	%	%	%	t%	SE%
Less than BA	85	7	---	---	---	28	0.9
BA	15	71	36	12	17	33	1.9
MA		21	46	38	---	18	1.5
Doctorate			18	50	83	20	1.0
Yrs with Lab							
1/2-1	---	7	27	25	---	10	0.9
1-2	60	14	18	38	17	32	1.6
2-3	30	57	36	25	33	38	2.2
3 plus	10	21	18	12	50	20	2.0
Yrs other employers							
Less than 1	25	7	9	---	---	11	0.9
1-5	25	29	18	25	33	26	2.0
5-10	15	50	36	25	17	30	4.1
10 plus	35	14	36	50	50	33	1.9

Ten percent have been with the Laboratory 6 months to a year, 32% are between 1 and 2 years, 38% are between 2 and 3 years and 20% have been employees for more than 3 years.

Eleven percent have work experience of less than one year with another employer, 26% have worked between 1 and 5 years, 30% have worked between 5 and 10 years and 33% have worked over 10 years with another employer.

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*This survey was performed by Dr. Joseph Ward with Laboratory basic contract funds.

As one would expect, there is a marked correlation between educational and salary level with 85% of those in salary levels 1 to 4 indicating they have less than a BA and 83% of those in levels 14+ with doctorates.

There is a less marked relation between experience with the Laboratory and salary level. Sixty percent of those in levels 1 to 4 have been with the Laboratory between 1 and 2 years and 57% of those in levels 5 to 7 have been with the Laboratory 2 to 3 years. This would suggest some tendency for the older employee to be in a higher grade level; however 1/4 or more of those in levels 8 through 13 have been with the Laboratory 6 months to one year and nearly half (45% of the 8 to 10 levels and 53% of the 11 to 13 levels) have been with the Laboratory for less than 2 years (as compared to 42% of the entire sample).

Possibly the most marked contrast is for the two top ranges where only 37% of those in the 11 to 13 levels have been with the Laboratory for over two years, whereas 83% of those in the 14+ levels have been with the Laboratory that long.

What may be surprising with respect to work experience with other employers is that at least half of those in all five salary ranges have more than 5 years work experience with other employers (from 50% in levels 1 to 4 to 75% in levels 10 to 13).

Needed Skills and Knowledge Respondents were asked to list additional skills and knowledges they felt they most needed to improve their efficiency in their present position. Answers have been coded into categories and "projected" to the total population of employees with six or more months service by multiplying the number in each category by the reciprocal of the sample fractions for the respective salary levels. These projected counts are reported in Table 2.

Table 2.

Projected Numbers of Laboratory Employees With Six or More Months

Service Indicating Needed Skills or Knowledges

Salary Level	1 - 4	5 - 7	8 - 10	11 - 13	14+	Total
Educational Development	6	16	18	10	8	58
Education Subjects	21	8	12	8		49
Evaluation	6	16	10	6	6	44
Writing & Communication	12	8	6	4	2	32
Finance	21	2	4	0	4	31
Other (English, Psych,etc)	18	8	0	0	0	26
Office Skills	12	0	0	0	0	12

In examining Table 2 it should be noted that we are projecting to a population of approximately 150 employees. We can estimate that over 100 employees believe that added skills or knowledges in development or evaluation would improve their efficiency. Approximately 1/3 indicate a need for more training in the field of education, 1/5 feel that training in communication skills is needed and an equal number believe that they need more training in the financial area. Office skills and general subjects (English, Psychology, etc.) are seen as important by those in salary levels one to four.

When this question was rephrased in terms of asking the respondents to name up to four kinds of training or college courses that would be most valuable in upgrading their abilities we find the projections indicated in Table 3.

Table 3.

Courses Named as Being Most Valuable in Upgrading Employee Abilities

(Projected to all employees with six months or more service)

Salary Level:	1 - 4	5 - 7	8 - 10	11 - 13	14+	Total
COURSES:						
Development	9	4	6	6	6	31
Psychology	12	4	10	2		28
Statistics	6	8	10		2	26
Evaluation	9	10	12	4		25
Management	6	2		6	4	18
Language	12	4	2			18
Communication	3	4	6	2	2	17
Administration	3	6	4			13
Office Skills	12					12
Art	12					12
Audio Visual	3	6		2		11

Academic Work Table 4 contains projections estimating the number of courses which have been taken by employees during their employment by the Laboratory.

Table 4.

Estimated (projected) Number of Courses Taken by Employees During

Employment by Laboratory

Salary Level:	1 - 4	5 - 7	8 - 10	11 - 13	14+	Total
None	30	2	10	16	8	66
One or More	30	26	13	0	4	73
One	6	14	10	0	0	30
Two	12	2	0	0	2	16
Three	3	4	0	0	0	7
Four	6	6	0	0	0	12
More than Four	3	0	3	0	2	8

Slightly more than half the Laboratory employees have taken at least one course and a substantial number have taken two or more courses. Those in salary levels 5 - 7 are remarkably active while those in salary levels 11 - 13 have been markedly inactive. We note that the Laboratory paid the fee for approximately 1/3 of the estimated 170 plus courses that have been taken.

Turning to employees' plans for taking courses in 1971, we find the data reported in Table 5.

Table 5.

Projection of Courses Employees (with six or more months service)

Plan to Take in 1971

Salary Level:	1 - 4	5 - 7	8 - 10	11 - 13	14+	Total
None	27	10	12	10	10	69
One or More	33	18	10	6	2	69
One	6	10	6	2	0	24
Two	15	6	0	4	0	25
Three	6	2	0	0	2	10
More than Three	6	0	4	0	0	10

Just half the employees plan to take one or more courses, and possibly as many as 150 courses may be taken. Somewhat more than half of those in salary levels 1 - 7 plan to take courses and most of those planning to take two or more courses are in this range.

The Consortium's Planning and Design Course Interest in the three courses to be developed by the Far West Consortium and offered at San Francisco State College (M.A. level) and San Mateo Community College (A.A. level) was gauged by briefly describing the content of each course and then requesting an expression of interest (in terms of the effort the employee would have to take). Projecting to the population, 14 employees would take the Planning and Design course on the college campus if scheduled at a convenient time and that was the only way they could take it. Thirteen more would take the course if offered at a convenient time in the East Bay. If offered at the Laboratory on Laboratory time, 22 more indicated interest. In all, 49 might be interested in the course, and 39 of these can be expected to be in the 1 - 7 salary level.

Interest in the Communications Skills course is even more pronounced. Sixteen would take the course on campus; 31 more would take it in the East Bay and 18 more would take it in the Laboratory on Laboratory time for a total of 65 persons, with 51 in the 1 - 7 salary levels.

Interest in the Information/Data Collection and Organization course closely parallels that for Planning and Design; 14 would take the course on campus, 13 more if offered in the East Bay and 19 more if at the Laboratory for a total of 46.

Of considerable interest in view of the Far West Consortium's plan for work-study internships are the answers to the question: "Would you be interested in a work-study internship that allowed you to work part time and to go to school part time in order to complete a degree or take specific training to prepare for a better position?" Results are displayed in Table 6.

Table 6.

Projected Number of Employees Expressing Interest in a Work-Study Program

Salary levels:	1 - 4	5 - 7	8 - 10	11 - 13	14+	Total
"yes"	42	24	12	4	4	86
"no"	18	4	10	12	8	52

A majority of all employees in salary levels 1 - 10 and especially those in levels 1 - 7 expressed interest in such a work-study internship.

Employee Appraisal of Laboratory Training A separate, anonymous questionnaire probed employee appraisal of on-the-job training. Table 7 summarizes responses to this item: "Most training is provided less formally through 'on-the-job' experience and supervision. Check the following item which comes closest to describing your 'on-the-job' training experience over the past six months."

Table 7.

Projection of "On-the-Job" Appraisals

Salary Levels:	1 - 4	5 - 7	8 - 10	11 - 13	14+	Total
"a" The only things I have learned on-the-job are those I taught myself.	9	6	4	2	6	27
"b" My supervisor has given me some instructions and simple training but not very much.	18	8	6	2	4	38
"c" My supervisor has provided a moderate amount of on-the-job training, but I think he could have helped me more.	9	2	4	0	0	15
"d" My supervisor has provided adequate on-the-job training. I don't think it would be reasonable to expect more on-the-job training.	24	10	4	6	2	46

These results can be viewed optimistically or pessimistically. The modal response for salary ranges 1 - 4 and 5 - 7 indicates an appraisal of adequate training. Yet, slightly over half the projection estimate is associated with the "a" or "b" response (no O-J-T or not very much). This situation is obviously understandable for those in the 14+ salary levels but it is also true for the 5 - 7 and 8 - 10 salary ranges.

A second question asked: "With respect to more formal on-the-job training where several employees meet to learn general job-relevant skill or knowledge (rather than to exchange information, to discuss or solve a specific division, program or task problem) I have . . ."

Table 8.

Employee Attendance at Formal On-The-Job Training

Salary Levels:	1 - 4	5 - 7	8 - 10	11 - 13	14+	Total
...never been in such a session	48	2	8	2	4	64
...attended one or two sessions	6	12	8	4	4	34
...attended several sessions	6	14	2	8	4	34

The remarkable results for this question, reported in Table 8, is that although the number who have attended one or more formal on-the-job training sessions almost equals the number who have not, 80% of those in salary levels 1 - 4 have not, whereas the majority of those in all other salary levels have attended such sessions. This raises the obvious question: Has the Laboratory neglected its lower salary level employees or don't they need formal on-the-job training?

A follow-up question requested those who had attended one or more sessions to rate them. Approximately 1/4 rated them "very good," another 1/3 rated them "good," more than 1/3 rated them "fair" and only 6% (two responses)rated them "very poor." Those in salary levels 1 - 4 were more prone to rate "very good" while all those in levels 14+ rated the sessions "fair."

Summary This report has been confined to an exposition of the questionnaire results. Additional interview information was collected, but is not reported here. Although 38% of the Laboratory employees with six months or more service have advanced degrees, the majority of our employees can profit from paraprofessional or entry professional training. Over half of the employees in the sample have taken one or more courses during their employment by the Laboratory. Our projections suggest that over 170 courses have been taken and that employees have paid for 2/3rds of these with the Laboratory paying for the remaining 1/3d. Half or more of our employees in the salary ranges 1 - 4, 5 - 7 and 8 - 10 have taken courses. Moreover, approximately 1/2 of our employees plan to take approximately 150 courses in 1971 and the preponderant number of those planning to do so are in salary levels 1 - 4 and 5 - 7. Types of courses most frequently mentioned (10 or more persons) are courses in: development, psychology, statistics, evaluation, management, language, communications, administration, office skills, art, and audio-visual.

Of the three Consortium courses to be offered this fall, the most popular is Communication Skills. As many as 65 employees might take this course if offered at the Laboratory on Laboratory time, and 16 might take it if only available on campus evenings or Saturdays. Under the most convenient conditions, 49 might take the Planning and Design course and 46 might take the Data Information course.

Well over half of the employees and the great majority of those in salary levels 1 - 7 expressed interest in a work-study internship arrangement.

With respect to on-the-job training (OJT) there is a wide range of opinion with some differences by salary level. Those in levels 1 - 4 and 11 - 13 tend to rate their supervisors as providing adequate OJT, but those in the other salary levels are less generous.

The majority of employees above salary levels 1 - 4 have attended formal OJT sessions and well over half rate these sessions as "very good" or "good." On the other hand only 20% of employees in levels 1 - 4 report that they have attended formal OJT sessions.

One cannot review the data developed in this survey without concluding that there is a strong interest in professional advancement evidenced by the employees of the Laboratory and especially those at the lower salary levels, both in terms of their past record of taking courses and their specific plans and active interests. The very large numbers indicating interest in work-study internships and Consortium courses raises the question of how far can we go, as supervisors and management, to provide for the career development of our personnel.

March 15, 1971

APPENDIX C

Congruence Between Modules and Training Characteristics

Conference notes:

Meeting of Developers in the Far West Consortium - June 4, 1971

Present: Joe Ward, Marjorie Kelley, Paul Hood, Bela Banathy, James Dunn,
Elaine Taylor, Carl Rittenhouse, Robert McMenamin, George Temp,
Ken Kennedy, Lori Steel, Audrey Putnam, Diana Studebaker

I Review of New Developments at Far West Lab in Design and Training - Paul Hood

Dr. Hood gave a brief introduction to the meeting, reminding those present that although coordination is difficult with a Consortium made up of people from many different organizations, it has the advantage, among others, of providing more points of view. He also stated that the purpose of constructing the Consortium courses was to make them comprehensible and successful rather than simply getting them done. Since all those chosen to be developers in this project are acknowledged experts in their fields, constructive criticism should pose no threat, therefore everyone was encouraged to use plenty of it to allow for the maximum number of new ideas, approaches, etc.

Dr. Hood then went on to describe the D,D&E Manpower Survey Design currently being initiated which will result in an additional project for the Consortium. He also described the "Employer-based Career Education" feasibility study, which will be one of three proposed models:

1. The school-based model-- improve the existing structure;
2. The community-based model-- a "vocational Sesame St."
3. The employer- based model

The feasibility of each of these models is now being studied. The Ohio State center is studying the school-based model. Two Consortia, Far West Laboratory, and Research for Better Schools, in Philadelphia, are investigating the Employer-based model. The Northwest Lab is the chief sub-contractor for FWL in this venture. Other agencies have been contacted to provide analyses, etc. Our basic goal is to study the feasibility of this model: systems structure, funding, legality, etc. A series of studies is now being made by Dr. Bela Banathy, who will direct the FWL part of the feasibility study, and Dr. Paul Hood, who is coordinator and technical monitor for the FWL-NWL venture.

According to Hood,there are distinct similarities between the D,D&E training project and the Career Education program, which he sees as a much wider version of the same kind of set-up, particularly with regard to the engineered Internship system. Before the Feasibility Study for this Project is fully drafted, many aspects of it will have to be pre-tested in the context of the D,D&E training project. Proof of effectiveness will be necessary to convince academicians, employers, etc. that it can work. Data resulting from the development of the D,D&E program can help here, and people who have gained experience and background in the D,D&E Consortium will be used. The relationship between the two projects will be close, in some cases the systems problems are almost identical. Final negotiations with regard to scope and funding are now underway.

II Progress

A. Overview: Joe Ward

Dr. Ward reported that the Consortium courses have been approved for inclusion in the September curriculum at both San Francisco State College and San Mateo College (Cañada College), although there have been some difficulties with SFSC in arranging internships. There have also been some preliminary discussions with Antioch College with regard to instituting the program in the new campus they will be opening in San Francisco. Antioch already has "College without Walls" campuses in Ohio, Maryland, Texas and Pennsylvania and has a long tradition of emphasizing employment.

The imminent summer break has required a concentration on recruiting activities now. So far, 18 full-time students have been chosen, plus various half-or part-time students. There have been a great many inquiries about half-time positions; unfortunately, most employers have been unwilling to budget them. It has been suggested that the employers encourage some current employees to go back to school half-time, and place interns in the half-time positions thus created. The difficulty with this is that employers are hesitant about giving such positions to inexperienced students. It is hoped that at least one student from each Consortium agency will enter the program. One special problem is posed by the creation of Development internships at the AA level, since employees at this level of training have not heretofore been used extensively for D,D&E work.

B. General Report - Planning and Design - Marjorie Kelley

Dr. Kelley reported that P & D Module 2 has been completed in draft and is ready to be revised. Preliminary materials and the outline for #1 have also been completed, but supporting exercises are still being sought. The current activity is the creation of a developmental exercise which will involve all the skills learned in both #1 and #2, a unit on the Development of Time concepts in 6th graders. The Exercise will be in addition to the Science Curriculum Improvement Study adaptation exercise at the end of Moudle 2. Lionel Olsen has agreed to write the Teacher's Guide for this course.

C. General Report - Information/Data Collection and Organization - J. Dunn

Dr. Dunn reported that the module on Statistics has been completed. The technique used in constructing it was to draft, circulate, revise, re-circulate, etc. Parts of it have already been tested. This module contains three levels of discourse--(a) student instructions (lessons); (b) academic work (how to do it); and (c) interstitial comments (relation of the material to its application). There are also three kinds of references--(a) basic (required); (b) supplemental (the same material from another approach to be used if the basic reference was not sufficient); and (c) enrichment (for the student who desires to further investigate a subject or an aspect of it). The module is based on the principle of learner participation, with the instructor serving primarily as a resource person. There are alternative activities, which can be arranged either sequentially or independently, and should be appropriate for both learners with some background in the subject and those with none. This module is now ready for clinical testing.

D. Communications Skills - Elaine Taylor

A number of types of exercise are being considered to test competence in the Listening and Speaking module. A test for telephone techniques could consists of an exercise in explaining and correcting errors over the phone. A functional literacy test in listening consisting of listening to and reporting three sequences of increasing difficulty from a cassette is available as a result of previous HumRRO research. This test can be taken by an individual or in a group, and extensive normative data already exists for it.

III Review and Comment on course materials - General Comments

The relevance of all the courses would be increased by the inclusion of more specifically Educational D,D&E materials as examples. Developers should collect memos, position papers, rough drafts, etc. to serve as examples. This will give the flavor of reality as well as more background knowledge of the field. One might make a viedeo-tape of a D,D&E conference such as this one. One could also record phone conversations-- the "slice of life" approach. It was suggested and decided that Marjorie Kelley should arrange the video-taping of a conference involving two or three developers sometime within the next month or two.

Dr. Banathy pointed out that two of the most important dangers in developing courses are that: (a) Those who actually teach the courses will not follow the original design, or that (b) The teaching will follow the design, and it will prove unsuccessful. In evaluating someone else's module, the developer should ask himself, "If I were going to teach this, what would I change?" Dr. Banathy then passed out a checklist which could be used to compare each module with the Functional Competence Model (checklist attached).

General discussion indicated that all three modules can be reworked to be better suited to the levels at which they are aimed, and all need more variation in technique.

A. Planning and Design Module critique:

The first fifty pages of this module present too solid a block of reading. More student participation is needed, it should be broken up with exercises, etc. Interim evaluation procedures should be employed. There should be a feedback section. The question is one of knowing when the student has mastered the material. Also more introductory exercises are needed to lead up to the SCIS adaption which is the module's culminating activity. There ought to be one exercise for each process described. For instance, the student could list the constraints involved in buying a car. An exercise in weighting objectives and constraints would be especially useful. Perhaps some of the general introductory material could go in the Orientation course.

D. General Report - Communications Skills - Ken Kennedy

The module entitled "Listening and Speaking" has been completed in draft form. Kennedy and Lee Carrau met twice a week while development was in progress. They tried to construct the matrix to fit the listed competencies. This module is probably one of the hardest to construct according to the objectives since by its nature many of its activities require a group. Materials on listening were particularly difficult and hard to find. The Developers had to construct examples and techniques which would fit into the D,D&E framework. Most of the learning episodes are sequential, although some can be done independently. The developers feel a need to pick up additional literature and make their examples more applicable when they revise. Most of the material consists of instructions to the instructor and evaluation forms at the end of each episode.

E. Evaluation Measures

1. Planning and Design - Carl Rittenhouse

Work on evaluation measures for this course is just beginning. The plan is to assess each module during its progress and then as a whole. Except at the orientation level, performance rather than knowledge will be stressed. The instructional materials are the basis for assessment. Examples of procedures are:

°Take a list of activities included in development, rank them, arrange them in sequence of time, etc.

°Choose between alternatives, i.e., weight them and give reasons.

°Make a list of considerations for a problem, add more, weight them, etc.

°Simulate a problem, and outline all steps necessary for solution, i.e. organization, weighting, sequencing, etc. Are there any missing pieces?

°Demonstrate ability to follow guidelines.

°Take a list of materials and note probable source for each.

2. Information/Data Collection and Organization - Elaine Taylor

The status of evaluation for the course is similar to that of Planning and Design, i.e., the basic approach is now being worked out. One possibility is a five-stage test patterned after the five general objectives. In this test, the exercises would be ranked in five levels of difficulty. The student would pick the hardest one he thought he could manage and try it. He would then evaluate his technique and make corrections and rewrite if necessary. There will probably be 45 items covering self-rating of specific abilities. The same rating instrument could be used as a pre- and post-test, and it could be filled out by the student himself, his peers, his instructor, his work supervisor (as part of the internship rating) etc., and all the results tallied.

Checklist

PROPOSED (SELECTIVE) CRITERIA FOR ASSESSMENT AND ADJUSTMENT

Overall:

1. Does the module adhere to the model presented in Volume One, p. 7.19?
2. Does the content of the module reflect the provisional description provided in Volume I and II?
3. In developing the module have you followed the systems approach in general and as described on pp. 7.1, 7.2 and 7.3?

Some Specifics

- Are your materials designed in the functional context mode? (F 6)

Are they:

- task analysis and
- learner performance based (F 8)
- learner active (F 8)
- learning focused (F 7) and
- multiple styled (F 6)

Do they allow a:

- self-directive (F 8) and
- self-evaluated (F 9) mode?
- Have you emphasized knowing how rather than knowing about? (F 3)
- Do you have content and learning experience alternatives available? (F 9)
- Have you provided for frequent assessment and feedback? (F 13)
- Have you developed a learning environment rich enough to be responsive to the learner? (F 14)

APPENDIX D

DESIGN OF A FUNCTIONAL COMPETENCE TRAINING PROGRAM FOR DEVELOPMENT, DISSEMINATION AND EVALUATION PERSONNEL

ENGINEERED INTERNSHIP

Paraprofessional Level

Plans for Cooperative Work Experience Phases of Instruction
in the Personnel Training Program for Educational Development,
Dissemination and Evaluation Careers

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June 1, 1971

DESIGN OF A FUNCTIONAL COMPETENCE TRAINING PROGRAM FOR DEVELOPMENT, DISSEMINATION AND EVALUATION PERSONNEL

ENGINEERED INTERNSHIP

Plans for Cooperative Work Experience Phases of Instruction in the Personnel Training Program for Educational Development, Dissemination and Evaluation Careers

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ENGINEERED INTERNSHIP

WHAT IS ENGINEERED INTERNSHIP?

Engineered Internship is an integral part of the DD&E program which provides students with off-campus educational work experience in an educational development, research, school district, or business agency with work assignments closely integrated with on-campus academic programs. Through the process students gain a deeper understanding of the relationship between classroom theory and its practical application on the job.

Students enrolled in the DD&E paraprofessional program or in one or more of the program's major courses may earn from 1 to 4 units per semester for a total of 16 units during a two-year period while enrolled in engineered internship periods of training.

WHO PARTICIPATES IN THE ENGINEERED INTERNSHIP?

The engineered internship is a cooperative effort of the educational institution and the DD&E agency. Participants are:

1) Students
2) Engineered Internship Coordinators
3) On-the-job Supervisors
4) DD&E Course Instructors
5) Counselors or Academic Advisors

STUDENTS

DD&E students enroll in engineered internship along with other courses in the program. Students and engineered internship coordinators together plan meaningful, on-the-job work experience that will provide growth and learning for the student and practical settings in which to experience the various elements of his academic program.

ENGINEERED INTERNSHIP COORDINATORS

The engineered internship coordinator meets with the students he supervises, both individually and in groups with other students enrolled in that program. He provides the liaison with the DD&E agency in developing, planning and coordinating. He recruits DD&E participating agencies and students interested in enrolling in the program. He meets with the students' on-the-job supervisor. He maintains all records related to the internship experience and monitors the student's progress.

ON-THE-JOB SUPERVISORS

On-the-job supervisors carry out the regular supervisory functions of their positions. They plan for growth experiences for the student and evaluate the student's performance. They communicate the student competencies and job skills required for performance of the DD&E work to the instructors.

DD&E INSTRUCTORS

The teachers of DD&E courses are directly involved in the engineered internship in providing on-campus educational experiences which relate to knowledge required on the job. They work with students, engineered internship supervisors and on-the-job supervisors to provide a viable program.

COUNSELORS

The DD&E counselor assists the student in his educational, vocational and personal development. He works with students and with other members of the school's professional staff. He is involved in the recruiting and selecting of students for the program; helps orient new DD&E students; provides ongoing counseling services; collects, reviews, and evaluates records of student progress and provides follow-up research in the DD&E program.

WHAT ARE THE PRIMARY FUNCTIONS OF ENGINEERED INTERNSHIP?

1. To provide opportunities for DD&E students to experience on-the-job activities which incorporate the knowledge and skills which have been gained through classroom learning or programmed instruction;

2. Provide opportunities for DD&E students to encounter problems and activities in which they are unable to participate because of lack of knowledge and skills, thereby motivating them to seek improvement through on-campus studies;

3. Provide opportunities for improving college on-campus DD&E instructional programs through a student feedback process which identifies areas of knowledge and skill development which have not been provided through the original DD&E instructional process.

WHAT ARE THE TYPES OF ENGINEERED INTERNSHIP OPPORTUNITIES?

1. Non-Employed Internship. Full-time students at Cañada College will in most cases receive opportunities for engineered internships during the first semester in the program. Students will be placed with an employer and will apply the specified skills until the internship plan requirements are satisfied. The student receives no pay, nor will the employer be reimbursed for providing the performance evaluation information by the school. The student may receive pay in some cases, however it is not a requirement of first semester internship. This will be worked out among employer, college and student. Through the cooperative engineered internship the full-time student will have full opportunity to meet the performance requirements of the internships. In many cases the student is simply offered a work situation which will allow him to meet the application requirements of consortium courses. The employer receives some free labor for his trouble. The amount of credit the student receives for his work experience would vary, depending on the amount and quality of work required to complete his internship plan.

2. Permanent Employee Internship. Developers may encourage selected employees to reduce workloads by varying amounts so that they will have the opportunity to spend the rest of their time taking consortium courses at San Francisco State or Cañada College. These courses require engineered work experiences so employees spend much of their time at the laboratory. The application of acquired D,D&E skills at the laboratory, required by these courses for credit, is "engineered". The employee's time, being paid for by the employer, can be used as the employer desires, However, to receive full benefit from the intern, the skills acquired in school should be those which are useful to the employer at the present time.

Persons in these internships are permanent employees with promise. They retain their status and benefits.

Employers are paid a fixed amount for providing student performance evaluation information to the school.

3. Temporary Employee Internship. Once a permanent employee enters an engineered internship program, the employer has a half-position open. This permits him to create an additional internship which is filled by a student taking consortium courses at the AA or MA level, depending on the requirements of the position. These persons do not have a permanent employment status or participate in laboratory benefits. The skills being acquired can be negotiated, however, to fit the employees' needs. Again, the employee probably spends much of his time at the laboratory since the consortium courses require him to apply the skills being learned in an on-the-job situation.

Employers are paid a fixed amount for providing student performance evaluation information to the school.

4. Created Internships. The D,D&E organization may allocate funds to create internships that will be filled by students desiring employment. These students will be recruited from San Francisco State and Cañada College. Internships will be funded for set periods of time and the application of acquired skills negotiated to meet employer and student needs.

5. New Careers. New career opportunities for educational advancement through D,D&E cooperative engineered internship arrangements with community colleges has great potential for development. The basic principle, following the pattern of new career programs as originally stated by Pearl and Reissman in their 1965 volume, New Careers for the Poor, combines the resources of college and community to bring the best advantages of both to bear on ther problems of poverty.

Cañada College in the San Mateo District has three years of providing this kind of cooperative interaction with disadvantaged employees of Veterans' Hospital in Palo Alto, and other agencies.

Students are provided with opportunities to attend classes after work at the Veterans' Hospital with instructors from the Evening Division of Cañada College. Upgrading and retraining education occurs as a result of college studies and full-time employment at the hospital or other government agencies in the area. Personnel records are updated on each student as he progresses in the program to assure his gaining the full benefits of payroll increases for improved skills and knowledge.

WHAT ARE THE ADVANTAGES OF ENGINEERED INTERNSHIP?

The National Commission for Cooperative Education had defined the cooperative plan of college education as one which integrates classroom experience with practical work experience in business, industry, government or service-type work situations. The work experience constitutes a regular and essential element in the educative process. There is a direct liaison between instructors and coordinators of the institution and supervisory personnel of the employing firms. Work experience is an integral part of the college degree program, and the institution takes a definite responsibility for the integration.

D,D&E Engineered Internship Experience Modules have been designed to take full advantage of the years of research and development which have preceded the D,D&E program.

WHAT DOES THE RESEARCH SAY?

In 1960 a study of Cooperative Education[1] in the United States found the following advantages in this type of higher education program:

1. By coordinating work experience with the campus educational program, theory and practice are more closely related. Students find that their studies have greater meaning.

2. Coordination of work and study improves student motivation. As students see the relationship between the jobs they hold and the principles they are studying on campus, greater interest in academic work develops.

3. Most students in cooperative education develop greater understanding of other people and greater human relations skills. This comes about because their work experience involves them with co-workers who come from a variety of backgrounds, and because success at their jobs requires constructive relationships with colleagues. Particularly important in this connection is the value obtained from the contacts made with adults in a variety of situations, thus helping to break down the traditional generation gap between students and adults.

4. Cooperative education helps markedly to orient college students to the world of work. It provides students with opportunities for exploring their own abilities in connection with real jobs. Students are exposed to a direct means of gaining vocational information and guidance, not only about the occupations in which they are employed, but in a number of related fields as well.

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[1] The complete documentation of this study is contained in Work Study College Programs: Appraisal and Report of the Study of Cooperative Education, by James W. Wilson and Edward H. Lyons, published by Harper & Bros. of New York. A summary of this study is contained in Report on Cooperative Education, by Ralph W. Tyler and Annice L. Mills.

5. Cooperative Education makes higher education possible and attractive to many young people who would not otherwise go to college. The earnings of the students while on the job have enabled many to attend college who could not otherwise have done so. This is beneficial not only to the individual, but to the nation, with its increasing need for well-educated people in science, engineering, business, public service careers and othe professions.

6. Work experience brings a greater sense of responsibility, greater dependence upon the students' own judgment, and a corresponding development of maturity.

7. Cooperative Education gives the student contacts which are useful in later occupational placement. It also gives many students a headstart in salary and position when they are graduated from college and go into full-time jobs.

8. As work programs are planned and developed and as students rotate from college to work and back to college again, the faculty can maintain a closer relationship with business, industry and the professions. This generally results in more effective teaching, since faculty members are kept up-to-date on the latest developments in their fields. Another incentive for faculty members to keep up with contemporary developments comes from the students who are frequently on the frontiers of knowledge in their job assignments.

9. Because cooperative education is usually organized so that half of the student body is at work while the other half is on the campus, there is more efficient utilization of the college plant and other facilities.

10. It has been the experience of existing cooperative education institutions that a program which enables students to work and earn while learning is acceptable to parents who ordinarily exclude higher education in family planning.

11. A number of the colleges have discovered that cooperative education provides greater recognition of the services that colleges are rendering to the community and thus furnishes an additional basis for the community's support of higher education.

12. Students in cooperative programs constitute an excellent source of manpower for semi-skilled and subprofessional work. In most industrial and business communities, there are many jobs that fall within this category; they are normally above the capabilities of a high school graduate, and yet beneath the interest of the fully-trained college or junior college graduate. These positions are important from the employer's point of view. He wants them filled, and he wants to avoid the cost and inconvenience of excessive turnover. Cooperative students serve his needs to perfection. Both student motivation and the superfisory participation of his college practically assure the continuity sought by the employer. Furthermore, students placed in such jobs bring to them enthusiasm, interest, and a higher-than-normal level of ability.

13. Work study cooperative education programs also have the value to employers of contributing to the recruitment and retention of gifted employees, as well as retaining them in their own communities. Employers in the community find that the cooperative program helps maintain a flow of trained personnel and personnel-in-training into their organizations. The program serves to attract promising young people into diverse occupational areas. Employers can use the system as an actual testing ground to identify and select persons with needed abilities and talents. During the work periods, the employer can study the aptitudes of the student within the actual environment of his own organization, using his own supervisory personnel to observe and assess. This yields the basis for sound judgment about the student's long-range potential as a permanent employee. Experience indicates that approximately 50-75 percent of the students exposed to this process will remain with their employers after graduation.

14. Studies of cooperative experiences show another advantage for employers on the level of maximizing talent utilization. The use of cooperative students to handle duties now performed by high-priced skilled workers or professionals releases the latter from performing "chore" jobs beneath the level of their skills. This does not mean that full-time workers are replaced by cooperative students, but rather that they are liberated to spend full time on more suitable and productive work. This arrangement is mutually beneficial to the student, the employer, and the skilled worker. The student gains experience; the employer attains a more efficient use ofppersonnel in all grades; and the skilled worker finds himself properly engaged in tasks commensurate with his capabilities.

DD&E ENGINEERED INTERNSHIP EXPERIENCE MODULES

The design of D,D&E engineered internship experience modules is based upon findings of the nationwide study of values found for students in traditional college cooperative education work experience. These basic concepts are expanded in concept to incorporate the specialized experience spectrum of careers in D,D&E. Following the first phases of D,D&E engineered internship development it is anticipated that considerable modification and expansion of the experience modules will occur.

Although each experience module is numbered, it is not intended that students be required to go through these experiences in any sequential order. Likewise there is no requirement for time limitations on engineered internship experiences. For some students there will be a need for extensive periods of work to develop desired outcomes. In other cases past experience may be called upon--verified and tested for accomplishment through special arrangements with coordinators and supervisors--which may be sufficient to assure full preparedness for D,D&E jobs. In no case is it the intent of engineered internship experience to require a student to go through meaningless exercises. It is the intent, however, to have the student participate in meaningful work experience which is necessary on the job to accomplish projects or assignments--some of which may appear to the student to be of a routine nature. All on-the-job experience will not always be new and exciting experience with continuous challenge. On the other hand, all of the work experience should be meaningful and necessary, with the student aware of why the various tasks are important to overall D,D&E organization goals.

D,D&E EXPERIENCE MODULE NUMBER 1

INTEGRATING THEORY AND PRACTICE IN COLLEGE STUDIES

Goal: Developing awareness of D,D&E operations on the job.

During the first three weeks of work in a D,D&E office the student will be assigned the task, along with other regular work duties, of preparing a five-page summary of the kinds of activities that take place in the D,D&E organization where he works. Information may be developed from brochures and other literature available. However, there is to be included evidence that the student has interviewed a minimum of three people on the job to gain their understanding of the process of development, dissemination and evaluation careers.

D,D&E EXPERIENCE MODULE NUMBER 2

DIRECT INTERACTION BETWEEN WORK AND STUDY ENVIRONMENTS.

Goal: Developing motivation to gain knowledge and skills in D,D&E

Research shows that as students see the relationship between the jobs they hold and the principles they are studying on campus, greater interest in academic work develops. Accordingly, it is recommended that during each semester of D,D&E engineered internship, students will write a minimum of six brief memoranda in the style used by the D,D&E organization where they work. These memos will be directed to teachers--with copies to coordinators--telling of changes or improvements in the instruction materials needed to meet the requirements of the job in which the student is involved.

D,D&E EXPERIENCE MODULE NUMBER 3

DEVELOPING HUMAN RELATIONS SKILLS

Goal: To increase student awareness of the need for effective human relations on the job.

During each semester of D,D&E engineered internship, the student will make a deliberate effort to learn the names of people with whom he is working. Depending upon the circumstances of office size, staffing patterns, supervisory techniques and local custom, it will be the responsibility of the student to develop techniques for remembering people's names.

At some time during each period of on-the-job experience, the student will seek the advice of his college coordinator, as well as his D,D&E supervisor at work, to gain insight into how well he performs his work and how he can improve his interactions with others. Through verbal communication skills the student will attempt to assess his effectiveness in dealing with others. This assessment will be conveyed primarily to the D,D&E engineered internship coordinator from the college and to the college counselor for D,D&E. In all cases the pattern of affective-domain interactive development will be encouraged through positive reinforcement. Testing of the student's ability to interact with people in the new environment of a work station should not become a situation of stress which interferes with productive work in D,D&E assignments.

D,D&E EXPERIENCE MODULE 4

IDENTIFYING CAREER OPPORTUNITIES IN D,D&E

Goal: To develop student awareness of the wide variety of employment opportunities in D,D&E now and in the future.

Near the end of the second semester of participation in D,D&E engineered internship the student will prepare a three-page summary based upon his own observations of the skills and talents of people where he works. Using his newly-developed skills in problem analysis, research, data gathering and summary procedures he will make his own personal assessment of the career opportunities in D,D&E.

He should ask himself questions about whether the skills, knowledge and special talents he is gaining in the program will prepare him for the kind of career he has been seeking. Using all the resources at his command and through original research procedures in which he is being trained, he will prepare a written assessment of his potential for a successful career in D,D&E.

Explorations should include consideration of employment opportunities in business and industry where D,D&E skills can be applied. These might include skills and knowledge in research data gathering, summary reporting of data, analysis of data as it might apply to marketing and management, communication skills as applied to business and industry, and evaluation techniques that may be gained from D,D&E courses which might apply to the broad range of career opportunities which are available in the San Francisco Bay Region.

D,D&E EXPERIENCE MODULE NUMBER 5

MAKING HIGHER EDUCATION ATTRACTIVE AND FINANCIALLY POSSIBLE

Goal: To develop student skills in budgeting personal financial resources and to attract competent students to D,D&E careers through paid work experience.

During each semester of paid work experience in the D,D&E program students will maintain an informal record of how they spend their money. This record may take the form in some cases of an accurate day-to-day accounting, for those who wish to make a detailed study of how their cash supply is spent. On the other hand, most students can benefit adequately from the experience of preparing a single-page summary of the general categories of expenditures as they recall them at the end of the term. In either case the student has become more aware of the problems of maintaining himself on the funds available from a paid job. For many students this may be their first experience in budgeting earnings. Others, who may be heads of families, or wives earning a second salary to supplement family earnings, may be more expert in budgeting family earnings than those who are coordinating and supervising the student activities.

As the student moves forward in the D,D&E program and in successive engineered internships, it is important that his personnel records be maintained to reflect increases in salary received as a result of advanced skills and knowledge gained from the program. Within the free enterprise system it is important to experience progress in financial reward which results from progress in intellectual attainment.

D,D&E EXPERIENCE MODULE NUMBER 6

DEVELOPMENT OF RESPONSIBILITY, JUDGMENT AND MATURITY

Goal: To develop student confidence in making decisions and knowing when to seek counsel and assistance.

Essentially the objective of this module, which will be repeated many times, is to gain experience in problem solving. The student in a variety of experience situations each semester will encounter problems to be solved. These will occur in real work situations--not in simulated problem solving circumstances, such as occur in the classroom, whether it be lecture-style or programmed-learning.

Through a process of encounter and response the D,D&E student will develop a pattern of problem solving which is unique to the student and to the organization in which he works. This pattern of problem solving will be modified continually through positive and negative experience. As the student gains a wider variety of experience he will encounter a greater number of problems to solve. Through discussions with his on-the-job supervisors, co-workers, and occasionally with his college D,D&E coordinator he will gain skill in dealing directly with problems and will learn to assess his own capabilities. Over a period of time, the student who is able to grow and mature in the decision-making process will learn to seek help as needed and to proceed on his own resources with confidence when able to do so.

Development of responsibility, judgment and mature decision-making capability is probably the most significant learning feature of the cooperative work experience educational design. It is particularly appropriate to the field of D,D&E careers. One of the primary vehicles for attaining the above-mentioned goals would be the seminars.

D,D&E ENGINEERED INTERNSHIP SEMINARS

The seminar provides an opportunity for every student to share feelings, experiences questions with the rest of the class in an informal and relaxed setting. It provides the professor with an opportunity to identify more readily and to move on areas of concern to his students. Seminars might be held off-campus, if and whenever suitable space is available elsewhere. Students should be encouraged to bring their logs (or diary) to the seminars and share sections that they might feel are appropriate to share with the rest of the class.

The instructor should provide a loose structure that insures an opportunity for every student to participate. Should one student have a particular problem on the job that lends itself to "role playing" the seminar is an excellent setting for students to gain insight through role-playing that scene,

The seminar can be used for evening field trips if appropriate, or for guests speakers who might not be available during the day.

Ideally the evening seminar will be student-centered and student directed. (I strongly recomennd that the first seminar be held during the college hour to allow the students to be involved in the decision making as to where and when the seminar will meet during the semester).

SEMINAR ALTERNATIVES Various approaches to the structuring and timing of the seminar have been attempted with very positive results.

1. A two-hour meeting once a week with attendance strongly encouraged.
2. A compulsory two- to three-hour meeting once a month.
3. Three required meetings a semester, one each at the start, midterm and final weeks.

One instructor could be responsible for the entire seminar program; the three instructors could be responsible for the sections of the course that would be concurrent with their portions of the course; or all three of them could attend all the sessions. Other variations are certainly possible and should be considered in light of the particular classes, instructors, and any other significant factors.

D,D&E EXPERIENCE MODULE NUMBER 7

EMPLOYMENT CONTACTS AND SALARY IMPROVEMENT

Goal: To increase student opportunities for employment.

Particularly attractive to the student in his later semesters of D,D&E engineered internship will be his opportunities to be interviewed by employers. One unique feature of cooperative work experience is the opportunity to experience first hand the inside operations of organizations whose business is development, dissemination and evaluation. Naturally resulting from this first-hand experience-- and with the assistance of the college D,D&E coordinator, and the on-the-job supervisor-- students will gain access to the people who do the hiring. This places the engineered internship cooperative education student at great advantage over those who must approach the organization from the outside through all the traditional screening procedures. Field trips and other opportuniites through the seminars would further broaden the students' horizons and contacts.

For those students who are in training through the New Careers or other special plans based upon previous employment, there is provided through the engineered internship experience a new opportunity for growth in the organization. Personnel records reflect the increase in college credits. Supervisors and coworkers become aware of the coordinated efforts that are being extended to assist the student to move forward more rapidly toward increased effectiveness and increased salary.

D,D&E EXPERIENCE MODULE NUMBER 8

STUDENT ADJUSTMENT TO ALTERNATE PERIODS OF STUDY AND WORK

Goal: To assure smooth transfer of student effort between school and work.

In traditional college training programs students spend a lengthy period of time in continuous enrollment studying to gain knowledge and skills through the lecture-study-demonstration-report-writing routines. Upon graduation an abrupt change occurs which requires a complete readjustment to full production in the world of work.

The plan for D,D&E students through cooperative engineered internship experience is to provide lengthy periods of study interspersed with lengthy periods of work in D,D&E agencies. This procedure gives the student many advantages, including an insight into the operations of D,D&E institutions.

As a result of the process of alternation, the student will gain experience in adjusting to a variety of new situations. With the support of college counselors, D,D&E coordinators, D,D&E instructors and sympathetic supervisors on the job who understand the training process, it is veryllikely that the student will be able to bridge the gap between school and work more effectively than in the traditional approach.

D,D&E EXPERIENCE MODULE NUMBER 9

UTILIZATION OF D,D&E INSTITUTIONAL FACILITIES

Goal: Expansion of student opportunities to observe and use high-cost laboratories and equipment not available on campus.

One of the more noteworthy features of cooperative education is student access to the multi-billion dolar laboratory of community resources not available to students in regular college programs. In the case of the D,D&E student it is possible that he will work in an environment of research activities, computer terminals, rapid access data storage and retrieval, micro-film records; including in most cases the opportunity to work with top experts in fields of research. Coordinators and supervisors of on-the-job experience will aid the student in gaining experiences that might not otherwise be available to the beginning employee or to the observer.

D,D&E EXPERIENCE MODULE NUMBER 10

MOTIVATION TO ACHIEVE HIGHER EDUCATION

Goal: To provide opportunities for encouraging discussions with supervisors and co-workers.

In an effort to motivate (1) disadvantaged students, (2) regular employees with high potential, (3) employees who seek methods of advancement, and (4) students who are potential dropouts because of low income, it is essential that during periods of D,D&E engineered internship these students have ample opportunity to receive encouragement from supervisors and others. Regular reassurance and assistance in times of difficulty on the job will tend to bring these students into the mainstream of higher education through the process of D,D&E cooperative internship.

Coordinators will in these cases alert the job supervisor and others who can provide regular encouragement in times of stress. Likewise the coordinators and college counselors will be made aware of regular D,D&E employees who can benefit from the program. Arrangements would then be made for conferences and counseling sessions to organize the most effective procedures for students and employees.

D,D&E EXPERIENCE MODULE NUMBER 11-14

D,D&E JOB DEVELOPMENT

Goal: To develop in the student an awareness of the need to seek employment opportunities in the emerging fields of D,D&E.

During one or more of the on-campus semesters or learning periods each D,D&E student should be assigned the task of preparing a creative writing statement on the potential need for employees in D,D&E throughout the total work force of business, industry and public agencies.

During the D,D&E engineered internship phase of each semester students should constantly scan the employment pages of San Francisco Bay Area newspapers and civil service announcements for opportunities that might relate to their areas of skill development. A paste-up scrapbook of these employment announcements might be assigned as a responsibility for selected students or to all students at the discretion of the coordinator. These announcements of employment opportunities should be recorded and duplicated for distribution as information to all D,D&E students and all D,D&E employers. The purpose of the assignment is to expand the horizons of employment potential of all participants--students, college personnel and employers.

D,D&E ENGINEERED INTERNSHIPS
HANDS-ON ASSIGNMENTS

Understanding the system (or "How to win without actually cheating")[2]. You operate at a handicap in any system if you don't understand very clearly the table of organization, the chain of command and the flow of communication. This can be studied and charted on two levels:

1. The formal structure (see attached illustration);

2. The informal structure (better known as the grapevine).

ASSIGNMENT

Draw a table of organization for your department, division, or section, showing who's who in the formal "pecking order".

Give an example of how this system works.

Draw a flow-chart type diagram of the "informal" system and give an example of how that works.

Observe a conflict situation and record how the issue was resolved, tabled, denited, covered up or dealt with in some manner. Conflict can be illustrated by starting with a simple equation: S = V = P: or, when a situation is not equal to the values one holds, that equals a problem. Here are a few factors to look for in your attempt to understand the conflict:

1. Are both parties (or all parties, if it involves more than two people) really clear about the issue in question, or is this simply a semantic bypass?

2. Is the identified issue really a "straw man" and the real issue still a secret agenda?

3. Is this a status problem? If so, whose?

4. How honest are both parties in their dialogue?

5. Is this a power struggle?

6. Do both parties really want to resolve their differences, or are they enjoying the contest?

D,D&E ENGINEERED INTERNSHIPS
THE DIARY

Many students have found this to be the most meaningful assignment they ever had in school. Most of the students that said this would tell you that they didn't feel this way when they were doing it, but as it progressed they grew to appreciate the long-term values it afforded them.

The diary is a daily on-going journal of your experiences on the job, or anything that you see fit to record that you feel is related to the job. Hopefully you will write this for yourself and not to please some professor. At this point you may thin, "Oh, Hell, another assignment!" This need not be a drag if you will simply discipline[3] yourself to set aside a few minutes

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[2] Stephen Potter's definition of "gamesmanship."

[3] The reader will kindly note that discipline is a ten-letter word. In spite of all you have heard, it is NOT a four-letter word.

every day to do it. May I humbly (but not too humbly) suggest the toilet as a dandy time and place for this. You do take time for that every day; it's a neat, quiet place where generally nobody bugs you, and if you'll simply form the habit of taking your notebook, scroll, or whatever device upon which you may wish to record this literary gem and a waterproof pen, you'll be off to a splendid start. Who knows? You may develop an appreciation for your bathroom that you never had before. Should you be a victim of very strict toilet training and the above-mentioned approach be completely unacceptable to you, may I suggest the bus stop, train depot or any situation where you know from past experience that there is a high probability that you'll have to spend some time.

You can make this even more of a growth experience if you'll take about five seconds every day before you go on the job and indicate by a little checkmark how you feel physically and emotionally. I stress FIVE SECONDS as a reasonable time because if it takes you longer to tell yourself than that, you are probably lying to yourself. It's very important that you do this before you go on the job because you force yourself into a mini-confrontation with yourself that can be most helpful to you and everyone with whom you come in contact. It's so easy to go on the job and not deal realistically with your physical and emotional state. By simply acknowledging this you can tend to be more sensitive to various scenes that may develop and not deny the reality that your EPS (emotional physical state) does affect--how you year, see and interpret all that happens to and around you. This has a secondary value in that you can go back through your diary and read your entries in light of how you felt that day.

Emotional	E					
Physical	P					

1= Excellent
5= Wretched

Sample Journals will be available in the Library.

ANOTHER "HANDS ON" ASSIGNMENT

Draw a diagram of the coffee shop, faculty lounge, or wherever staff congregate. Are there seating patterns that are somewhat predictable? Do they relate to shared interests, status, gossip (another shared interest) or some other factor? Write a brief report on this and indicate how much planning, decision-making, etc., is carried on here in relation to the formal meetings.

Look for the social aspects of this time and place. Is there a tendency to talk about those who are not present? Do people tend to stop talking when someone enters the room? Is it primarily a place to relax?

Try to be aware of patterns of group behavior. For example, is Wednesday generally a high-efficiency day for most staff? And are Monday and Friday low (or lower) efficiency days?

Describe the physical environment of the school, plant or office in which you are working. What factors do you find conducive to living and working in this setting? What factors do you find distracting or in any way not conducive to a creative productive atmosphere? Be specific in noting factors like: "We have a lot of natural light," "I feel like a mole after working all day in that basement," "The background music is soft, but not distracting," "That damned air conditioner is driving me ape," "I really don't care much for the early Truman period furniture and the civil service green walls"--or any comments that aid in identifying the specific factors that add or detract from a positive atmosphere.

D,D&E ENGINEERED INTERNSHIPS
BEHAVIORAL OBJECTIVES

1. Draw a table organization, illustrating the organization in which the student works;

2. Draw a flow chart of the flow of communication, formal and informal;

3. Draw a diagram of the office, classroom, or plant in which they work indicating who works with whom, and the "turf" that they tend to consider theirs;

4. Draw a diagram of the coffee shop, lounge, or gathering place with the grouping patterns as observed in that setting;

5. Structure a schedule that allows for various shifts and days off.

CAÑADA COLLEGE-DD&E ENGINEERED INTERNSHIP PROGRAM

Please print

Last Name First Name Initial ________ Phone Number ________ Age ________ Current Date ________ 197__

Address City Zip ________ Social Security No. ________

Sex: Male ( ) Female( )

U. S. Citizen Yes ( ) No ( )

Ethnic Origin: ( ) Caucasian ( ) Afro-American ( ) Oriental ( ) Latin American ( ) American Indian ( ) Other________

Units Completed to date________ Currently Enrolled in________Units (not including Co-op Ed.)

College Major:________ Counselor (day students only)________

DD&E Engineered Internship Work Station (Present Employment)

Company ________ Address ________ City ________ Telephone ________ Supervisor ________

Duties________

Work Schedule:

Monday________

Tuesday________

Wednesday________

Thursday________

Friday________

Saturday________

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EMPLOYER'S EVALUATION OF COOPERATIVE STUDENT

Information, as checked in the spaces below, will assist the Institute in its appraisal of the cooperative work of

_______________ (Name) **Course** _______________

for the work period indicated _______________

Employer _______________

INSTRUCTIONS: The immediate supervisor will evaluate the student objectively, comparing him with other students of comparable academic level, with other personnel assigned the same or similarly classified jobs, or with individual standards.

RELATIONS WITH OTHERS

- ☐ Exceptionally well accepted
- ☐ Works well with others
- ☐ Gets along satisfactorily
- ☐ Has some difficulty working with others
- ☐ Works very poorly with others

JUDGMENT

- ☐ Exceptionally mature
- ☐ Above average in making decisions
- ☐ Usually makes the right decision
- ☐ Often uses poor judgment
- ☐ Consistently uses poor judgment

ABILITY TO LEARN

- ☐ Learns very quickly
- ☐ Learns readily
- ☐ Average in learning
- ☐ Rather slow to learn
- ☐ Very slow to learn

ATTITUDE—APPLICATION TO WORK

- ☐ Outstanding in enthusiasm
- ☐ Very interested and industrious
- ☐ Average in diligence and interest
- ☐ Somewhat indifferent
- ☐ Definitely not interested

DEPENDABILITY

- ☐ Completely dependable
- ☐ Above average in dependability
- ☐ Usually dependable
- ☐ Sometimes neglectful or careless
- ☐ Unreliable

QUALITY OF WORK

- ☐ Excellent
- ☐ Very good
- ☐ Average
- ☐ Below average
- ☐ Very poor

ATTENDANCE: ☐ Regular ☐ Irregular PUNCTUALITY: ☐ Regular ☐ Irregular

OVER-ALL PERFORMANCE: Outstanding Very Good Average Marginal Unsatisfactory

What traits may help or hinder the student's advancement?

Additional Remarks (over if necessary):

This report has been discussed with student? Yes No

Rated by: _______________ (Immediate Supervisor) _______________ (Title)

_______________ (Department) Date _______________

DEAN OF STUDENTS

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CAÑADA COLLEGE DD&E ENGINEERED INTERNSHIP PROGRAM

WORK PERIOD REPORT SHEET

Date ....

Name .... Course ....
(Last) (First) (Middle Initial)

Work Period Residence Phone .... Section .... Yr. of Grad. ....
(Write out exchange name; capitalize dial letters.)

Work Period Residence Address ....
(Number) (Street) (City) (State) (Zip)

Co-op Firm ....
(As shown in the telephone book.)

Address of Co-op Firm ....
(Phone book) (Number) (Street) (City) (State) (Zip)

Plant (if more than one) .... Co-op Firm Phone ....
(Write out exchange name; capitalize dial letters.)

Name of Supervisor,
Department Head, or Foreman .... Title ....

Name of Employment Manager ....

Date Began Working This Period .... Rate of Pay at Beginning of Period ....

Working in .... Department for .... Hours per Week
(Identify Dept.—Do not use numbers.)

Coordinator, Cañada DD&E: E.I. .... From........ A.M. to........ P.M.

Nature of Work in Detail ....

....

....

....

....
(Over if necessary.)

Date First Began Duties Described Above ....

Name of Co-op Who Worked on Your Present Job Last Period ....
(Ask your supervisor.)

Check Changes:

Latest Change in Rate of Pay Was from $........... to $........... effective ....

Hours per Week Changed from .... to .... effective ....

Supervisor Changed from .... to ....

Firm: Busier .... No Change .... Slower ....

Comments: ....

....
(Over if necessary.)

APPENDIX E

DESIGN OF A FUNCTIONAL COMPETENCE TRAINING PROGRAM FOR DEVELOPMENT, DISSEMINATION AND EVALUATION PERSONNEL

IMPLEMENTATION OF THE DD&E PROGRAM IN THE COMMUNITY COLLEGE

Paraprofessional Program

Procedures for Implementation of DD&E Consortium Programs in the Community College as one Phase of Development of the Personnel Training Program for Educational Development Dissemination and Evaluation Careers

DD&E IMPLEMENTATION DEVELOPER PARA-PROFESSIONAL PROGRAM PLANNING

Dr. Robert L. Bennett

Cost Code: 202-81-05-51

SUBMITTED TO:

Far West Regional Laboratory for
Educational Research and Development
Claremont Building
1 Garden Circle
Berkeley, California 94705

July 22, 1971

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IMPLEMENTATION OF THE D,D&E PROGRAM IN THE COMMUNITY COLLEGE

Paraprofessional Program

The purpose of this report is to provide an account of the activities that have taken place in the implementation of an Associate Degree program in D,D&E (Development, Dissemination, and Evaluation) at Cañada College during the fall semester of the school year 1971-72.

ORIGINAL DECISION MAKING

In retracing the developmental history of the project it would appear to be valuable to describe some of the planning sessions, discussions with teachers and division deans as well as counselors and others associated with Cañada College's cooperative education program. The next steps which were critical in implementation were approvals from the Committee on Instruction and from the Board of Trustees. Currently the emphasis is on development of instructional materials for the three courses to be taught and on preparations for cooperative education engineered internships. Registration of students and counseling will continue throughout the summer with final student lists to be available in September when college begins.

The first step in development was to find some teacher counselors and cooperative education coordinators who might be interested in developing a D,D&E program. The search was undertaken at College of San Mateo and Cañada College with emphasis on the English and Social Science Divisions. During the first discussion periods it was clearly established that the greatest interest in the program was at Cañada College. The original plan was for an interdisciplinary program between the English and Social Science Divisions. As the original project was read and discussed by faculty members a more intense interest was expressed within the Social Science Division by Cañada faculty members. The original emphasis on an interdisciplinary approach was changed to a concentration within the Public Service Careers. The training of paraprofessional workers in teacher assistant, social work, and scientific technician positions would be expanded to include D,D&E paraprofessional training.

The decision to focus on one division in an expansion of an ongoing program has proven to be a sound one. The major teacher developers are involved in these training programs. It is a natural extension of their work to branch into the D,D&E professional field.

The original decision to enter the field of D,D&E training was influenced substantially by the potential application of this training to a broad range of careers in business and industry. Particularly the skills of data interpretation, statistical analysis of marketing information and development of management-decision-making based upon research is desperately needed throughout the world of work. In an age of automation where rapid processing of information occurs through high speed data processing it is essential that management decisions have the support of competent paraprofessional information development and evaluation personnel.

TEACHER, COUNSELOR, ENGINEERED INTERNSHIP DEVELOPERS

It can be anticipated that a high degree of success will be achieved in the D,D&E project as a result of the efforts of three or four excellent teacher developers available in the Social Science Division. The key to success will rest on the high quality materials which are emerging and the skillful procedures which will be used by these teachers. In the original planning with the teacher developers it was proposed that a three course core component for D,D&E careers would be developed from the pattern established in the original proposal. These courses would be taught at Cañada College with the assumption that additional courses would be developed leading to an Associate Degree and upper division studies articulated with San Francisco State College. Consortium arrangements for this development were explained. It is the understanding of developers that the training project will probably be funded for a period of three years and will include substantial developments of guidance components and engineere internship, as well as programmed learning materials. The teacher developers have worked with staff members from Far West Regional Laboratory, Lockheed Training Centers, Stanford Research Institute, American Institute for Research and others who are cooperating to complete the development of the first three courses.

The first enrollments of students are underway for fall semester 1971. Course being developed are in programmed instruction format using coordinated instruction procedures. The primary course design is being completed by five team members from Cañada College and the San Mateo District.

The first major emphasis was on the course Communication Skills with the primary development responsibility lying on Mr. Ken Kennedy, James Upton, Patricia Pallister O'Brien and Bennett Kilpack. Work on the engineered internships has moved along with Kilpack, O'Brien and Robert Bennett involved in the creation of experience modules. Counseling and guidance modules have been developed by O'Brien and Bennett.

The nine-institution Consortium effort to develop this new career area of D,D& is working well. The program has moved from the conceptual framework to one of implementation and operation within the community college. It is anticipated that successful instruction of students will take place during the fall semester using the new course content and procedures being developed.

INTERACTION WITH DIVISION CHAIRMEN AND DEANS OF INSTRUCTION

A significant activity within the community college process of course implementation is to move the basic ideas and concept from the teache developer to the supervisory level. Two people--the Chairman of the Social Science Division and the Dean of Instruction-- are critical decision makers at Cañada College. The job of convincing them that this was a good program worthy of implementation at Cañada College was undertaken primarily by Kennedy, Upton, Kilpack and Pallister. These are the key people in development and they are strong staff members in the Social Science Division and counseling program.

The process of presenting the ideas for supervisory consideration was done informally on a one-to-one basis. Individuals proposed the idea at different times, and explained various phases of the program as they emerged. The point of positive decision making occurred when it was clear that the new D,D&E concept was clearly a reasonable component of the Public Service Training Careers Program of the Social Science Division. As soon as the lines of curriculum interaction were established then the program had clear sailing to the Committee on Instruction.

ACTION BY THE COMMITTEE ON INSTRUCTION: CAÑADA COLLEGE

A major decision point in the implementation of new programs in community colleges is the decision of the Committee on Instruction to support the proposed courses. The DD&E courses were presented to Committee on April 15.

Before the meeting a substantial amount of course material preparation had been completed. Individual conferences had been held with influential members of the group to outline the need for these courses and to explain the program curriculum content. The Cañada College Dean of Instruction and Dean of the Social Sciences Division were fully aware of the course content and were in agreement with introduction of the program as a part of the social science division's public service career offerings.

STATEMENT TAKEN FROM SAN MATEO JUNIOR COLLEGE DISTRICT POLICIES AND PROCEDURES

6.15 Curriculum Development

The recommendations of the Committee on Instruction are reviewed by the Superintendent who recommends to the Board of Trustees for approval.

The overall program of the college will be continually appraised to assure that the courses offered meet the needs of the community and the ambitions and desires of the students. The chief agency for coordinating curricular change will be the Committee on Instruction, whose duties and composition are detailed in Section 2.93. This committee will serve as a clearing house for suggested changes in the curriculum and as the agency for the study of educational needs of the District.

The DD&E courses are subject to San Mateo District policies and procedures on curriculum development. These developmental procedures have been completed and the courses are approved and adopted for Cañada College to be offered first during school year 1971-72.

COMMITTEE ACTION

Social Science

It was moved by Lois Jacques, seconded by Melinda Murphy, and passed (1 abstention) that the following courses: Social Science 10, and Social Science 11 and Statistics 1 (modification of present course) be recommended for approval and that they be added to the list of General Education Requirements under Basic Subjects.

Social Science 10, Interaction and Communication for the Paraprofessional (3)

Three lecture hours per week.
Prerequisites: None
This course is designed to develop skills in human interaction, listening and speaking, technical writing, interoffice communications, and preparation of public information data.

Social Science 11, Introduction to Systems Analysis and Design (3)

Three lecture hours per week.
Prerequisites: None
This course introduces the student to the general concepts of planning and design. Emphasis is placed on problem solving, research techniques and adaptation to resource limitations on the designer. Experiences are provided in meeting performance specifications in an industrial, business and/or professional environment.

Statistics I, Introductory Statistics for the Behavioral Sciences (3)

Three lecture hours per week--Fall Semester
Prerequisites: High school Algebra and sophomore standing, or consent of instructor
An introduction to the descriptive techniques and methods of inference appropriate to psychology and related fields, includes classification of data, graphical representation measures of central tendency and dispersion, normal curve, etc., elementary statistical inference, hypothesis testing and correlation.

DD&E INSTRUCTORS

James Upton and Ken Kennedy presented the material on Social Science 10 and 11, and commented that the purpose of the courses would be to train students to do research, planning, designing, etc. These courses are being developed in conjunction with a consortium of other institutions, schools and agencies and will be financed by a Federal grant of funds from the U. S. Office of Education.

BOARD OF TRUSTEE APPROVAL After approval had been received from the Committee on Instruction, a board report was prepared by the Cañada College administration working with the District administration to prepare the case for inclusion of the new courses at Cañada to the Board of Trustees. This is a formal request for Board approval which is presented at one of the regular meetings with full discussion by trustees, administration and instructors.

Minutes of the meeting of the Board of Trustees of April 28, 1971 (see pp. 11-12) show that the D,D&E courses were approved along with 14 other Cañada College courses. Several questions were asked about the expansion of new programs. The Board was primarily concerned that other "old" courses should be deleted as new programs and new courses are developed. A decision was reached to review this matter and make recommendations for the deletion of some courses that were on record but no longer being taught.

After Board approval the following activities began.

SELECTION, COUNSELING AND REGISTRATION OF STUDENTS

Selection of students to participate in the original course offerings of the D,D&E program at Cañada College in the fall of 1971 is proceeding on the basis of student interest. At the paraprofessional training level there are few agreed-upon guidelines for choosing those who can benefit most from D,D&E courses. It seems most reasonable therefore to counsel and enroll those students who show a high degree of interest rather than using selective screening procedures to hold down enrollments.

There are two main sources of potential students for the initial courses in the fall semester of 1971--the students continuing at Cañada or entering new in the fall, and potential students in the community (to be found largely in government and industry) who are not enrolled or planning to enroll at the college. The problems of identification, counseling, recruitment and establishing selection criteria for each of these groups is necessarily different. First semester focus will be on students already enrolled or planning to attend Cañada College.

In fall, 1971, a full AA degree major in D,D&E will not be offered. Students who take the courses will be largely those who can obtain practical benefits who are in other majors, students who are already working and who wish to improve job skills, students who are undecided regarding their major and students who wish to explore D,D&E as a possible major. For this reason, it will not be practical at this stage to assign all students to one counselor prior to registration, and it is not recommended to make a change of counselor after registration. This is even further supported by the fact that D,D&E is new and relatively unknown by counselors, students, and the general public.

Counseling in the D,D&E program will initially involve many indirect functions as well as direct contact with students. Counselor Pat Pallister has identified some of these as:

1) Participating in the initial planning of the program:

2) Meeting with course developers as course content and techniques are organized;

3) Identifying characteristics of students who can benefit most;

4) Collecting, analyzing, and interpreting data at the college regarding identifying likely enrollees;

5) Distributing information to Cañada College counselors regarding the nature of the program;

6) Distributing information to students regarding the nature of the program;

7) Distributing general information to faculty, staff and others;

8) Assisting in the registration of DD&E students; Keeping counselors, division chairmen, deans, aware of developments ad classes fill;

9) Working closely with the course instructors and engineered internship personnel who will be greatly involved with getting to know the students personally, analyzing their job situations and needs, their future plans and goals, providing information regarding the objectives of the course and program;

10) Working with the course instructors, particularly in the planning and design course, in the orientation of students to the AA degree and in interpreting to students the scope of DD&E program;

11) Studying the characteristics, interests and abilities of the students enrolled in the program;

12) Planning regarding forms and materials required for counseling and informational services while the student is enrolled and as a basis for follow-up. (Applications, interview guides, test results, student evaluations and employer ratings)

13) Collecting and maintaining student cumulative counseling records;

14) Disseminating records of student progress to Far West Laboratory for Educational Research and Development;

15) Analyzing achievement records of students enrolled and making recommendations regarding any special handling required;

16) Developing articulation rapport, materials, with high school counselors in the District;

17) Developing articulation arrangements for students who later plan to transfer to a bachelors degree program or those students who plan to take DD&E training at the professional level (graduate studies);

18) Recruiting and selecting new students;

19) Personal counseling of students and others with questions regarding the program.

D,D&E COUNSELING

Each fulltime student is assigned a counselor who advises him in his major field. Counselors are available to assist students in their personal, vocational, and educational development. Counselors see students at critical decision points in their college career--prior to registration, dropping and adding classes, in personal concerns, in educational and vocational planning decisions, and in determining whether or not to withdraw from college. Fulltime counselors also teach a series of guidance classes where programs such as D,D&E are discussed with students.

As the program develops and is better known and a full AA degree major is available, it is anticipated that counseling will be assigned to one counselor. To the above functions will be added a much more directly personal involvement with the students enrolled and a much more meaningful counseling relationship established.

Since the intent of the Far West Consortium for D,D&E Training is to develop and test models and support modules that have applicability in other than the initial training situations, and since the program is relatively new, it is necessary to prepare general information for public use regarding the nature, objectives, and scope of the program. The D,D&E counselor is playing a key role in developing this material and in communicating this information to others. Written forms, brochures and guidance materials are being developed as well as slidetapes and other audio-visual techniques for providing information.

OTHER ACTIVITIES

Other activities to establish the D,D&E program have included the following:

> The D,D&E courses, including Cooperative Education Engineered Internships, were placed in the announcement of courses for 1971-72 in the Cañada College catalog. (See page 13.)

Student information sheets on careers in educational development were prepared and distributed to interested students. (see pp. 14-15.)

Careful consideration was given to incorporating the D,D&E program into the basic philosophy and purposes of the San Mateo Junior College District. (see p. 16.)

Careful consideration was given to establishing reasonable administrative structures for the D,D&E program. (see pp. 17 ff.)

In summary, it is reasonable to state at this time that the D,D&E program is firmly established at Cañada College within the Public Service Career training area of the Social Science Division. At the present time procedures are underway to counsel and register students within the program in anticipation of the studies to be undertaken during fall semester of school year 1971-72. The full spectrum of operation available to all community college students in the San Mateo Junior College District and particularly at Cañada College will be available to the D,D&E students.

SAN MATEO JUNIOR COLLEGE DISTRICT April 28, 1971

BOARD REPORT NO. 71-4-5B

DD & E PROJECT
NOTE PAGES 2 and 3
OF BOARD REPORT

TO: Members of the Board of Trustees

FROM: Clifford G. Erickson, Chancellor-Superintendent

APPROVED BY: George A. Mangis, Acting President, Cañada College

PREPARED BY: George A. Mangis, Dean of Instruction

APPROVAL OF NEW COURSES, CAÑADA COLLEGE

The following courses have been approved by the Cañada College Committee on Instruction, and are hereby administratively recommended:

BUSINESS

37 PRINCIPLES OF BANK OPERATIONS (3)

Three lecture hours per week.
Prerequisites: None

A description of the fundamentals of bank functions. A study of bookkeeping operations involving the day-to-day banking activities; various bank services such as loans, savings, trusts, legal considerations; the Federal Reserve System and related government controls.

CHEMISTRY

30a/b INTRODUCTORY CHEMISTRY (4)

Three lecture hours and three lab hours per week
Prerequisites: High School Algebra (Chemistry 30a or its equivalent is a prerequisite to Chemistry 30b)

SOCIAL SCIENCE

10 INTERACTION AND COMMUNICATION FOR THE PARAPROFESSIONAL (3)

Three lecture hours per week.
Prerequisites: None

This course is designed to develop skills in human interaction, listening and speaking, technical writing, inter-office communications, and preparation of public information data.

11 INTRODUCTION TO SYSTEMS ANALYSIS AND DESIGN (3)

Three lecture hours per week.
Prerequisites: None

This course introduces the student to the general concepts of planning and design. Emphasis is placed on problem solving, research techniques and adaptation to resource limitations on the designer. Experiences are provided in meeting performance specifications in an industrial, business, and/or professional environment.

DD & E PROJECT
BOARD OF TRUSTEE
COURSE APPROVAL

E-12 A motion by Trustee Fontana to approve the sabbatical leaves for 1971-72 as detailed in Board Report No. 71-4-15A failed to receive a second.

Chancellor Erickson suggested that further review of the sabbatical leave requests could be made in an Executive Session following regular Board business on the agenda this evening. It was determined by Board consensus that this proposal be followed.

PROCEDURES FOR SCREENING OF CANDIDATES FOR PRESIDENCY OF COLLEGE OF SAN MATEO (71-4-17A)

Chancellor Erickson presented Board Report No. 71-4-17A (revised) titled "Procedure for Screening of Candidates for Presidency of College of San Mateo".

The Board requested an additional opportunity to study this recommendation and to make suggestions for possible revision, if necessary.

APPROVAL OF NEW COURSES, CAÑADA COLLEGE (71-4-5B)

Acting President Mangis presented Board Report No. 71-4-5B titled "Approval of New Courses, Cañada College".

It was moved by Trustee Ward and seconded by Trustee Nettle, that the new courses as detailed in Board Report No. 71-4-5B be approved for offering at Cañada College. The motion carried, all members present voting "Aye".

In response to a question from Trustee Nettle, Acting President Mangis noted that the Cañada Committee on Instruction had on a number of occasions deferred taking action on requests for approval of new courses until revisions had been made in the scope or requirements of the proposed courses. Acting President Mangis also noted that 17 courses listed in the Cañada College catalog for 1970-71 had been deleted from next year's offerings.

Acting President Mertes noted that the College of San Mateo Committee on Instruction had on numerous occasions sent back to the individual originating the request a proposed new course for further refinement or revision.

APPROVAL OF NEW COURSES, SKYLINE COLLEGE (71-4-6B)

David White, Dean of Instruction at Skyline College, presented Board Report No. 71-4-6B titled "Approval of New Courses".

It was moved by Trustee Ward and seconded by Trustee Nettle, that the new courses as detailed in Board Report No. 71-4-6B be approved for offering at Skyline College. The motion carried, all members present voting "Aye".

USER FEES FOR STUDENT HEALTH AND PARKING SERVICES (71-4-8B)

Chancellor Erickson presented Board Report No. 71-4-8B titled "User Fees for Student Health and Parking Services" to the Board for first reading. This report recommends the levying of a non-refundable parking fee of $10.00 per semester for day students and a non-refundable health service fee of $3.75 per semester for day students enrolled in more than one

*CANADA COLLEGE DD & E COURSE LISTINGS IN 1971-72 CATALOG

Announcement of Courses

Practically all courses numbered from 1 to 49 are accepted by colleges and universities as transfer courses, assuming satisfactory grades. Certain colleges will accept, as transfer credit, units earned in many courses numbered 50 and above; such courses generally, however, are intended primarily as terminal courses.

The following courses have been approved for all instructional departments:
"47" Courses - COOPERATIVE EDUCATION (1-3)
"48" Courses - SPECIAL TOPICS (1-2)
"49" Courses - INDIVIDUAL PROJECTS (1-2)
Courses numbered "10" are specifically designed for General Education.

The credit value of each course in semester units is indicated by a numeral in parentheses following the title. A semester unit of credit is based upon one hour of the student's time at the College per week in lecture or recitation throughout one semester, together with the time necessary in preparation thereof, or a longer time in laboratory or other exercises not requiring outside preparation.

Generally, in the following course descriptions, both semesters of a year's course are listed together if the first semester course is a prerequisite to the second semester course.

Evening College courses are described in a separate Evening College catalog-schedule. Many regular day college courses are also offered in the Evening College.

Specific information concerning class hours will be found in the Schedule of Classes for the semester.

Social Science

1 INTRODUCTION TO THE SOCIAL SCIENCES (3)

Two lecture hours and one discussion hour per week.

An introductory course in the methodology of the social sciences. Using local problems as a basis of study, this course is designed to demonstrate how the resources of political science, anthropology and sociology can be utilized in working out solutions. This course carries California State and Local Government credit.

2 INTRODUCTION TO THE SOCIAL SCIENCES (3)

Three lecture hours per week.

Prerequisite: None; (Social Science 1 preferred).

An introductory course in the methodology of the social sciences. Using international problems as a basis of study, this course is designed to demonstrate how the resources of history, economics and political science can be utilized in working out solutions. (This course carries American History and Institutions credit.)

*10 INTERACTION AND COMMUNICATION FOR THE PARAPROFESSIONAL (3)

Three lecture hours per week.

Prerequisities: None.

This couse is designed to develop skills in human interaction, listening and speaking, technical writing, inter-office communications, and preparation of public information data.

*11 INTRODUCTION TO SYSTEMS ANALYSIS & DESIGN (3)

Three lecture hours per week.

Prerequisites: None.

This course introduces the student to the general concepts of planning and design. Emphasis is placed on problem solving, research techniques and adaptation to resource limitations on the designer. Experiences are provided in meeting performance specifications in an industrial, business, and/or professional environment.

*47 COOPERATIVE EDUCATION (1-3)

Supervised field experience by arrangement.

29 JUVENILE PROCEDURES (3)

Three lecture hours per week.

Prerequisites: Police Science 9, Social Science 40, or Sociology 2, or concurrent registration in same.

The position the public agencies play in juvenile and delinquency control; organization and functions of related juvenile agencies; the laws governing the handling of juvenile offenders and their application; a brief resume of the juvenile court and its jurisdiction.

33 AFRO-AMERICAN CULTURE (3)

Three lecture hours per week.

A contemporary view of Black America. Concerned with the current political and social movements in Black communities with an emphasis on the urban area. The contemporary Black family will be examined, and culture of the contemporary Black community will also be studied in present and historical perspective.

34 MEXICAN-AMERICAN CULTURE (3)

Three lecture hours per week.

A contemporary view of the Mexican-American community covering its cultural heritage, social structure, problems and creative contributions.

HOW TO QUALIFY

This program is for people who believe that effective education is important, and would like to become involved in finding out the things that will make it so.

The basic requirement for entrance is completion of regular Cañada College admission procedures.

COST

No tuition is charged to residents of the San Mateo Jr. College District, of which Cañada College is a part. Students purchase their own books and supplies, and provide their own transportation, meals, and lodging.

HOW TO APPLY

If you are interested in this program, talk to:

Your counselor,

Miss Pat Pallister, Dean
of Women, Cañada College
4200 Farm Hill Blvd.
Redwood City, Ca. 94061,

or

Dr. J. S. Ward, Far West
Laboratories for Educational Research &
Development,
#1 Garden Circle, Hotel
Claremont, Berkeley, Ca.
94705

THE FAR WEST CONSORTIUM

The Far West Consortium consists of a group of research and development agencies in the Bay Area which have cooperated to produce this program for Cañada College. They include:

THE FAR WEST LABORATORY for Educational Research and Development, Berkeley, Ca.

STANFORD RESEARCH INSTITUTE, Palo Alto, Ca.

HUMAN RESOURCES RESEARCH ORGANIZATION, Monterey, Ca.

LOCKHEED Missile and Space Agency, Educational Systems Division, Sunnyvale, Ca.

EDUCATIONAL TESTING SERVICE, Berkeley, Ca.

AMERICAN INSTITUTES FOR RESEARCH, Palo Alto, Ca.

SAN FRANCISCO STATE COLLEGE, San Francisco, Ca.

SAN MATEO COLLEGE DISTRICT, San Mateo, Ca.

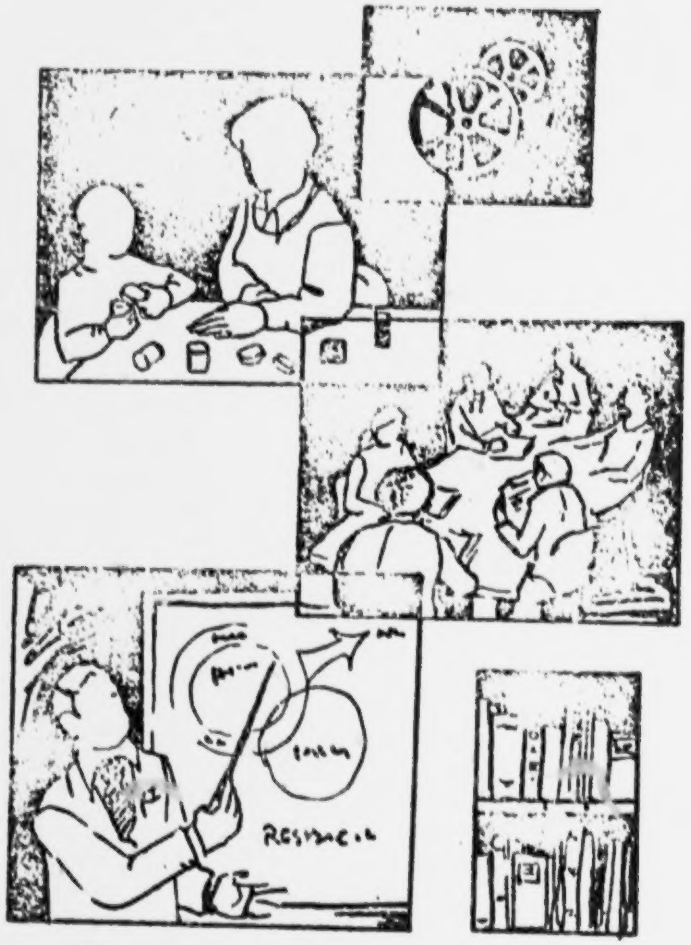
MONTEREY PENINSULA COLLEGE, Monterey, Ca.

STATE EDUCATION AGENCY, Dept. of Education, State of California

Schools of Education of various colleges and universities in the Bay Area

Local and other education agencies in public school systems and special schools.

Careers in
EDUCATIONAL DEVELOPMENT



Cañada College

EDUCATIONAL DEVELOPMENT

WHAT IS IT ? WHY DO IT ?

At a time of increasingly rapid technological and social change, it is especially important that educational systems and techniques be able to prepare people for the world they will have to live in. By working to make these systems and techniques more effective, the research worker in Education has the opportunity to make a real contribution to Society.

The program in Development, Dissemination, and Evaluation (D,D&E) is a new solution to our new problems. This program is designed to train personnel who can assist in developing, publicizing, and applying new educational techniques.

CAREER OPPORTUNITIES—

There is a major demand for people who have been trained in all aspects of Development, Dissemination, and Evaluation. In the Bay Area alone there are more than 40 organizations which are devoted to educational development or have large training establishments. In addition to public school systems, colleges, and universities, these include research organizations, banks, health services, airlines, and many kinds of industry.

In the past, training programs for this kind of work have been almost nonexistent, and the supply of trained applicants for such positions has been far exceeded by the demand.

The A.A. degree in Social Science with a specialization in Educational Development, Dissemination, and Evaluation will qualify graduates for jobs such as Research, Technical, or Curriculum Assistant, or other equivalent positions, with companies of the types listed above, at an average starting salary of $600.00 per month.

THE CURRICULUM

The Program in Development, Dissemination, and Evaluation was developed by the Far West Consortium, a Berkeley based group comprised of educators from a number of different schools and organizations. It is the only program of its kind at this time, however it is expected to serve as a prototype for such programs in other colleges and universities. The curriculum and the courses it includes have been carefully constructed along guidelines resulting from a detailed analysis of the nature and needs of educational development.

Plans for the program include a series of courses covering the total range of skills and knowledge needed to perform this kind of work. Courses to be offered at Cañada College during the Fall 1971 semester are: *Interaction and Communication for the Paraprofessional; Introduction to ~~Systems~~* Planning *~~Analysis~~ and Design;* and *Information/Data Collection and Organization.*

ON THE JOB INTERNSHIP

A basic part of the D,D&E program is the opportunity for the student to apply what he has been taught and so gain the maximum value from his training by means of a supervised internship.

Together, the student, his counselor, and his prospective employer will set up a plan of work which he will execute at a chosen Development agency. In addition to acquiring unique and invaluable experience, trainees will receive college credit and be paid for their work.

THE COURSES

SOCIAL SCIENCE 10 - *Interaction and Communication for the Paraprofessional* (3), MWF 12-1

Three lecture hours per week.
Prerequisites - None.
This course is designed to develop human interaction and communications skills. These will include listening and speaking skills such as: conference techniques, interviewing, briefing; specialized reading skills; and writing methods used in note taking, technical writing, and formal and informal report preparation.

SOCIAL SCIENCE 11 - *Introduction to ~~Systems~~* Planning *~~Analysis~~ and Design* (3), TTh 12-1:30

Three lecture hours per week.
Prerequisites - None.
This course introduces the student to the general concepts of planning and design. Emphasis is placed on problem solving, research techniques, and adaptation to the resource limitations of the designer. The course will also include experience in applying these skills in an educational, research, industrial, and/or business environment.

STATISTICS 1 - *Information/Data Collection and Organization* (3), MWF 2-3

Three lecture hours per week.
Prerequisites - None.
This course will introduce the student to basic methods of collecting and presenting information. These will include searching out, retrieving, and organizing documentary information, and the basic procedures for finding, organizing, analyzing and displaying data.

DD&E PROJECT COURSES WITHIN THE STATEMENT OF PHILOSOPHY AND PURPOSE OF THE SAN MATEO JUNIOR COLLEGE DISTRICT

Careful consideration is given to all new programs to assure that they are in accord with the goals of the San Mateo Junior College District. College of San Mateo, Cañada College and Skyline College--the three campuses of the San Mateo Junior College District--have individual procedures for taking courses through instruction committees. However, each procedure is within the framework of philosophy and purpose as outlined in Chapter 6, Section 6.01, entitled "Educational Program".

Chapter VI

EDUCATIONAL PROGRAM

6.01 Philosophy and Purpose

College of San Mateo has established its educational philosophy on three fundamental premises: that a free society requires intelligent support, that the individual has worth and dignity, and that a college has obligations to both society and the individual.

As a corollary to these premises, the College realizes that in its role of Community College it must remain sensitive to changes in the needs of its community and evolve its educational offerings in response to those needs.

In general the purpose of College of San Mateo is to provide education beyond high school for people in its district who can profit from it. This education is designed to help the student become aware of his potentialities, stimulate his cultural interests, and develop his vocational abilities. It prepares the student to assume the responsibilities of citizenship in our free society. It offers him the opportunity to assimilate an organized body of knowledge, to employ critical thinking, and to construct an informed frame of reference.

To achieve its purpose, College of San Mateo offers the following kinds of education:

General Education: General Education serves to broaden and balance the intellectual growth of the student. It consists of courses outside any specialized study he may pursue for his vocation or profession. The hope of General Education is better individuals and better citizens.

Lower-Division College Education: Courses which will enable students, including those who come with scholastic deficiencies, to complete the first two years of four-year college work. These courses satisfy the lower division requirements in the liberal arts and in the scientific, engineering, and other professional fields.

Technical-Vocational Education: Training in skills which will qualify students for employment in business and industry.

Adult Education: Classes in which all persons living in its community may broaden their educational, vocational, and aesthetic horizons.

Community Education: Short courses, public forums, lecture series, small group discussions, institutes, and similar educational and cultural programs for the public at large.

To assist each student to profit most from his education, the College helps him to discover his aptitudes, to choose his life work, and to plan an educational program which will prepare him for that work. It offers this guidance through a formal program of guidance and counseling, and through informal student-teacher relationships, which are among the most distinctive and valuable of its services. The College recognizes the educational value of organized student activities and encourages student and faculty participation in these activities.

ADMINISTRATIVE STRUCTURE OF THE SAN MATEO COLLEGE DISTRICT AND CAÑADA COLLEGE AS RELATED TO THE D,D&E PROGRAM

All new programs in order to be successful must be tailored to fit the institutional pattern. In some cases innovative programs are introduced through the Evening College extended day operations. Particularly if the major emphasis is on upgrading and retraining employees, the Evening College route has proven to be most effective. Other programs are introduced as experimental courses planned for one year of operation with opportunity for adoption after one year of testing for student interest and instructional effectiveness.

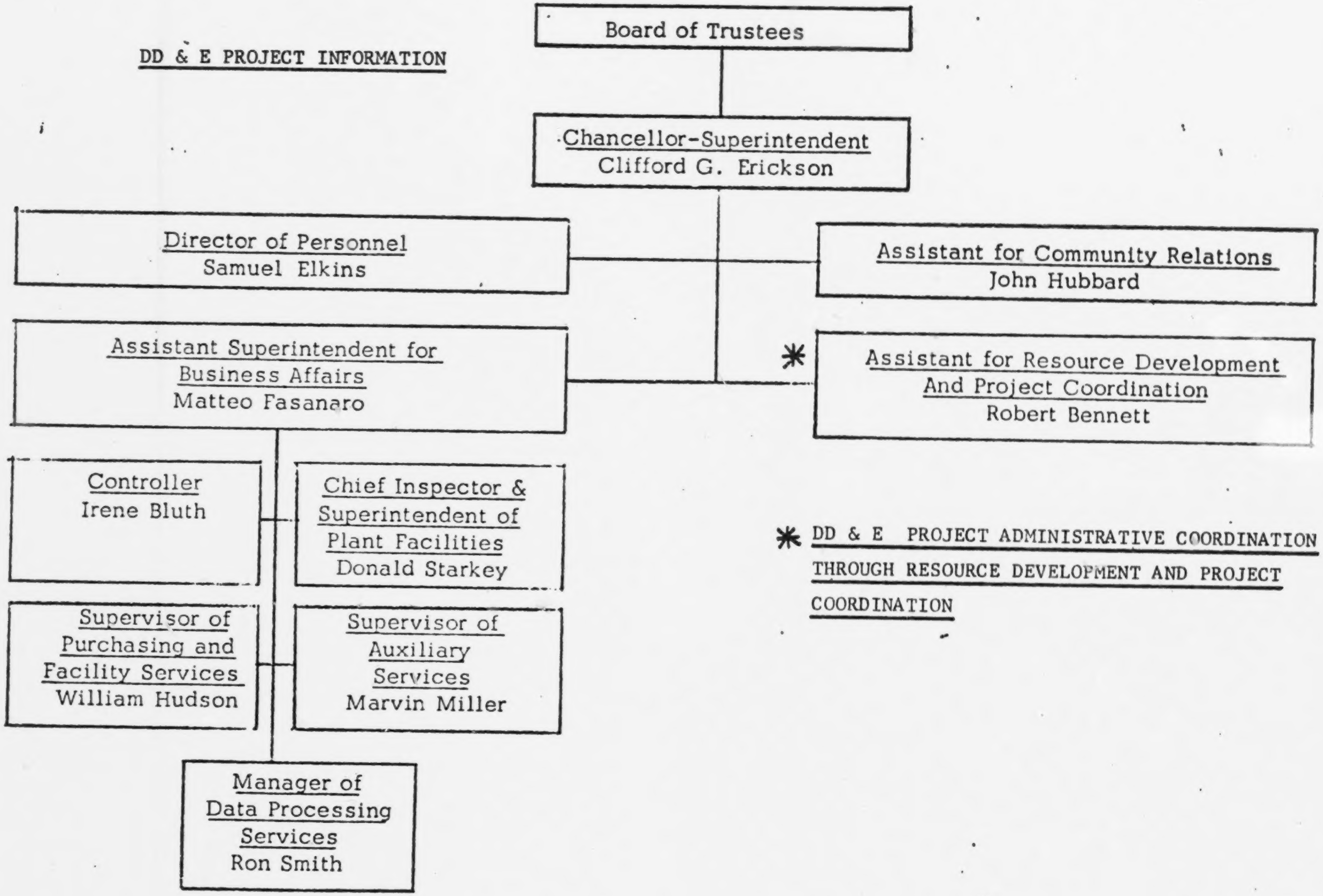
In the case of the D,D&E program, it was determined that the most effective procedure would be to work directly with teachers in one division under the supervision of one division chairman in one college that wished to develop the program.

The plan for administrative relationships is shown on the following three pages. It should be clearly understood that all operational control of the program rests with Cañada College.

DISTRICT OFFICE STAFFING PLAN

San Mateo Junior College District

DD & E PROJECT INFORMATION


Board of Trustees
Chancellor-Superintendent
Clifford G. Erickson
Director of Personnel
Samuel Elkins
Assistant for Community Relations
John Hubbard
Assistant Superintendent for Business Affairs
Matteo Fasanaro
*
Assistant for Resource Development And Project Coordination
Robert Bennett
Controller
Irene Bluth
Chief Inspector & Superintendent of Plant Facilities
Donald Starkey
Supervisor of Purchasing and Facility Services
William Hudson
Supervisor of Auxiliary Services
Marvin Miller
Manager of Data Processing Services
Ron Smith

* DD & E PROJECT ADMINISTRATIVE COORDINATION THROUGH RESOURCE DEVELOPMENT AND PROJECT COORDINATION

2.130

Assistant to the Chancellor-Superintendent for Development of Financial Resources and Project Coordination

DD & E PROJECT COORDINATION

Selection·

Subject to approval by the Board of Trustees, an Assistant to the Chancellor-Superintendent for Development of Financial Resources and Project Coordination will be appointed by the Chancellor-Superintendent. The Assistant will serve as a staff officer and will be directly responsible to the Chancellor-Superintendent.

Duties and Responsibilities·

1. Is responsible to Chancellor-Superintendent for planning and development of financial resources, maintaing liaison with funding agencies, carrying out research and project coordination activities, and other duties as assigned by the Chancellor-Superintendent.

2. Develop information on sources of federal, state, local, foundation and private funding which can be used for instruction, student personnel services and research and development throughout the District.

3. Disseminate information to college presidents and appropriate persons at each college on:
    a. Sources of funds.
    b. Necessary documentation
    c. Submission deadlines
    d. Other pertinent information about project proposals.

4. Develop projects and prepare proposals for grants for District-wide projects and, at invitation of college president, coordinate the development of projects and proposals for grants at the colleges.

5. Maintain a suspense file and advise project applicants of impending program deadlines.

6. Coordinate continued follow-up on projects submitted for funding.

7. Assist in planning appeals in cases of insufficient project funding.

8. Insure continued follow-up on projects approved for funding to see that proposals are completed, funding requirements met, and budgets satisfied.

9. Perform other duties as assigned by the Chancellor-Superintendent.

E-20

Administration

* DD+E Project

District Chancellor-Superintendent
Clifford G. Erickson

Assistant Superintendent for Business Affairs
Matteo V. Fasanaro

CAÑADA COLLEGE STAFF

President
James W. Duke

Dean of Instruction
George A. Mangis

Associate Dean of Instruction, Continuing Education
Leland H. Mahood

Assistant Dean, Vocational-Technical Education and Evening College
Frederick L. Gilman

Chairman, Library and Audio Visual
Amerigo T. Ciani

Assistant for Community Education
Ruth K. Nagler

Dean of Students
William J. Walsh

Dean of Men
Robert C. Fryckman

* *Dean of Women*
Patricia Pallister

Head, Student Development Program
Lester S. Campbell

Assistant for Information Services
Drucilla A. Anderson

Assistant for Registration
Lynn E. Carlyle

Manager of Services
John H. Rhoads

CHAIRMEN, DAY DIVISIONS

Business
Louis E. Yaeger

English and Foreign Languages
Robert Stiff

Fine Arts
John Krueger

Life Sciences and Health Education
John C. Forsythe, Jr.

Mathematics & Engineering
James R. Loughrey

Physical Education and Recreation
Gordon M. Gray

Athletic Director
Samuel J. Nicolopulos

Physical Sciences
Ross W. Westover

Social Sciences *
Melvyn E. Pratt

Calendar for 1971-1972

June 21-July 30
6 weeks Summer Session
June 21-August 13
8 weeks Summer Session

FALL SEMESTER

September 3, 7, 8
Registration
September 4
Registration, special students
September 6
Labor Day holiday
September 9
Admission Day holiday
September 13
Day and Evening classes begin
September 17
Last day to add new classes
September 24
Last day to drop a class without penalty
October 4
Census Day
October 15
Applications available for spring semester
October 25
Veterans' Day holiday
November 5
Mid-term grade reports due
November 25-26
Thanksgiving Recess
November 29
Last day to drop a class without dean's approval
November 29-December 17
Counseling for continuing students
December 10
Last day to apply for graduation
December 20-31
Winter recess
January 17-21
Registration, continuing students
January 17-25
Final examinations
January 21
Evening College classes close
January 25
Day College classes close

SPRING SEMESTER

January 26-31
Registration, new and returning students
February 1
Registration, special students
February 7
Day and Evening classes begin
February 11
Lincoln Day holiday
February 14
Last day to add new classes
February 18
Last day to drop a class without penalty
February 21
Washington Day holiday
February 28
Census Day
March 15
Applications available for fall semester
March 27-31
Spring recess
April 7
Mid-term grade reports due
April 14
Last day to apply for graduation
April 28
Last day to drop a class without dean's approval
May 29
Memorial Day holiday
June 7-15
Final examinations
June 9
Evening College classes close
June 15
Day College classes close
June 16
Commencement

E-22

APPLICATION FOR APPROVAL FOR NEW COURSE

Office of the Dean of Instruction

Date March 31 Submitted by Kennedy/Upton Division Social Science

Department, Number and Title of Course: Semester Units

Social Science 10, Interaction and Communication for the Paraprofessional (3)

Length of Course: One Semester x One Year ______

Description of Course This course is designed to develop skills in human interaction, listening and speaking, technical writing, interoffice communications and preparation of public information data.

Object or Purpose Development of basic skills for paraprofessionals, especially those interested in Educational Research and Development.

Lecture Hours 3 Laboratory Hours ____ Shop Hours ____ Home Prep. Hours ____

Prerequisites None

Grade Level: Type of Course:
13th Year ____ 14th Year ____ Either ____ Transfer ____ Terminal ____

If College Transfer -- This proposed course is:

The same course as ______ (Institution) Equivalent to ______ (Institution)

Parallels ______ (Institution) Prerequisite to ______

APPROVED:

1 April 71	M. E. Pratt	4/15/71	
Date	Division Chairman	Date	Dean of Instruction
		4/15/71	
Date	Chairman, Evening College (If Evening College Course)	Date	Chairman, Instruction Comm.
4/21/71	William Wald		William A Goss
Date	Dean of Students	Date	President

Date Approved by Committee on Instruction 4/15/71

GAM:gg
8/9/68

APPLICATION FOR APPROVAL FOR NEW COURSE

Office of the Dean of Instruction

Date March 30 Submitted by Kennedy, K. Division Social Science

Department, Number and Title of Course: Semester Units

Social Science 11, Introduction to Planning and Design 3

Length of course: One Semester x One Year ______

Description of Course This course introduces the student to the general concepts of planning and design. Emphasis is placed on problem solving, research techniques and adaptation to resource limitations on the designer. Experiences are provided in meeting performance specifications in an industrial, business, and/or professional environment.

Object or Purpose Development of basic skills required of the para-professional especially those interested in research and design occupations.

Lecture Hours 3 Laboratory Hours ____ Shop Hours ____ Home Prep. Hours ______

Prerequisites None

Grade Level:
13th Year x 14th Year ____ Either ____

Type of Course:
Transfer ______ Terminal ______

If College Transfer -- This proposed course is:

The same course as ______ (Institution) Equivalent to ______ (Institution)

Parallels ______ (Institution) Prerequisite to ______

APPROVED:

[illegible] M. E. Pratt
Date Division Chairman

[illegible]
Date Dean of Instruction

______ ______
Date Chairman Evening College (If Evening College Course)

4/15/71
Date Chairman, Instruction Comm.

4/21/71 William Wald
Date Dean of Students

______ William A Goss
Date President

Date Approved by Committee on Instruction 4/15/71

GAM:gg
8/9/68

COURSES RELATED TO DD&E PROJECT IN SOCIAL SCIENCE DIVISION

35 CHILD IN THE HOME (3)

(also Home Ec. 35)

Three lecture hours per week.

Prerequisite: Completion of or concurrent enrollment in Psychology 1a.

Emotional, social, intellectual, and physical development of children to six. Understanding the young child, the point of view of a child, individual differences, implications for later behavior and personality growth; emerging resources for coping with the world. Observation of a child in depth; participation in a variety of pre-school experiences and evaluative conference with instructor.

36 THE LIFE CYCLE: INDIVIDUALS AND FAMILIES (3) (also Home Ec. 36)

Three lecture hours per week.

Prerequisites: None.

Crisis situations and their affect on family relationships. Research in family community services. Developmental problems and changes in the family structure. Study of family throughout the life cycle. Study of contemporary women and men in society.

38 COMMUNITY RELATIONS OF PUBLIC AGENCIES (3)

Three lecture hours per week.

The role of public agencies in contemporary society with particular emphasis on minority group relations. An examination of the society and the agencies that perform the police and service functions.

40 INTRODUCTION TO SOCIAL SERVICE (3)

Three lecture hours per week.

A course designed to assist students in their decision-making about careers in one of the Social Services and to give students an opportunity to interact with representatives from any social service agencies. A survey of the Social Services, their scope, purposes, problems, and issues. Designed to provide an overview of the many local, state, and federal services.

41 THE COMMUNITY WORKER (2)

Two lecture hours per week.

Prerequisites: Concurrent enrollment in Sociology 47—Cooperative Education (1-3); Social Science 40 or consent of the instructor (acceptable field experience).

Instruction in writing observations, log entries, reports, evaluation, case studies, and other related writing skills; field trips to various local agencies and institutions. Emphasis on the meaning of "professionalism," the importance and function of professional ethics and the difficulty personnel encounter in living these roles.

44 COMMUNITY DEVELOPMENT (3)

Three lecture hours per week.

The dynamics of community decision-making process in relation to meeting social welfare needs and problems; the variables in the functions and roles of the community organization and community development worker; the process of effecting change in communities.

48 SPECIAL TOPICS (2-3)

Two or three lecture hours per week.

A class dealing with topics of special interest. Specific subject matter will vary from semester to semester and will be announced in advance.

49 SPECIAL PROJECTS (1-2)

Prerequisites: Previous or concurrent work in Social Science and the consent of the instructor and the Social Science Division Chairman.

Specified individual study or directed research in specific problem areas.

52 CRIMINAL LAW (3)

Three lecture hours per week.

Prerequisites: Police Science 9, Social Science 40, or consent of instructor.

Reason for criminal laws, their source and function in our society. The structure, definitions and most frequently used sections of the California Penal Code. Classification of crimes, nature of crimes, intent involved in the commission of an offense, attempts, conspiracy and criminal responsibility. (May also be taken as Police Science 52.)

Sociology

1 INTRODUCTION TO SOCIOLOGY (3)

Three lecture hours per week.

Analysis of processes of group behavior and interaction between the individual and society; personality development in different cultures as shaped by learned customs, attitudes and values. Study of family, politico-economic and religious behavior; social movements; institutions, "mass society" and communication; community structure, social class and status, ethnic minorities, with close study of ethnic relationships.

2 SOCIAL PROBLEMS (3)

Three lecture-discussion hours each week.

Socialization and development of the self: processes by which individuals learn approved behavior patterns and disturbances of those associated with non-conformity. Theoretical and descriptive study of patterns of poverty, crime/delinquency and treatment of offenders, racism, and associated problems. Prevention, control and rehabilitation. Costs and casualties in an acquisitive society.

Objectives of the College

Specifically, Cañada College provides its students with:

(1) Courses which will enable them to complete the first two years of college work, in order to satisfy the lower-division requirements of four-year institutions.

(2) Training in and improvement of skills which will qualify them for employment in business and industry and in careers with public service agencies.

(3) Counseling, tutoring and special programs which enable them to recognize and to deal with their special abilities, interests and needs so that they can make independent and mature decisions.

(4) Classes and resource facilities in which all persons in the community may broaden their educational and vocational potential and enhance their cultural development.

In all of these courses and programs, we believe that we have the obligation to help each student:

To develop useful skills,

To think critically,

To learn how to learn, which, in addition to seeking answers, involves asking thoughtful questions,

To be responsive to persons and things in his immediate environment and to increase his skills in human relationships,

To appreciate and enjoy our pluralistic cultural heritage, and

To re-examine constantly, in the light of increased knowledge and changing circumstances, his own and society's basic assumptions and objectives.

To assist each student to profit most from his education, the College helps him to explore his aptitudes, to choose his lifework and to plan an educational program which will prepare him for that work. It offers this assistance through a formal program of guidance and counseling, and through informal student-teacher relationships, which are among the most distinctive and valuable of its services. The College recognizes the educational value of the organized student activities and encourages student and faculty participation in these activities.

Cañada College is a part of a colorful community which, situated as it is, close to San Francisco and to several fine colleges and universities, enjoys many cultural advantages. Many graduates will transfer to the University of California, Stanford University and the nearby state colleges. The needs of these students who transfer to upper division work are carefully provided for in the curriculum. Many Cañada College students, having terminated their formal education with the Associate in Arts degree, will find employment in business and industry.

Role of the Faculty and Students

Cañada College is governed by policies approved by the Board of Trustees of San Mateo Junior College District. These policies encourage maximum autonomy and therefore delegate many responsibilities to the individual colleges within the District.

Cañada College seeks the counsel of its faculty and students through a system of permanent committees and through informal or short-term bodies. The regular committees are organized under the Faculty Senate, which operates through a Governing Council (elected by the teaching faculty) and through the following committees: Instruction, Faculty-Student Relations, Professional Personnel and Salary. Student members of the first two of the listed committees are appointed by the Associated Students Council.

Accreditation

Cañada College is approved by the Office of the Chancellor of the California Community Colleges and by the Veterans Administration, and is fully accredited by the Western Association of Schools and Colleges, the recognized local agency which is affiliated with the Federation of Regional Accrediting Commissions of Higher Education.

Evening College

Cañada Evening College offers a wide range of classes including lower-division collegiate work leading to the completion of an Associate in Arts degree and/or transfer to a four-year institution, and classes designed to meet the specific needs and interests of adults.

An Evening College catalog and schedule may be obtained from the College upon request. Copies are also available at public libraries shortly before the beginning of each semester.

Summer Session

San Mateo Junior College District offers summer sessions at colleges within the District. Further information may be obtained by calling Cañada's Evening College office.

Summer session also affords the opportunity for superior high school students after completing their junior year, to take a number of selected college courses. Further information may be obtained by contacting the high school counselor.

College Library

With a dramatic reading room which affords a panoramic view toward the wooded slopes of Skyline ridge, the library provides students with excellent facilities for the use of books, periodicals, and audio-visual materials.

General Information

The College

Cañada College is one of three community colleges within the San Mateo Junior College District. It enrolls students from the entire District, although its chief service area is the Sequoia Union High School District.

Cañada College (and its unidentical twin, Skyline College in San Bruno) originated from the realization in 1963 that the College of San Mateo would reach its designed capacity by 1966. In another sense, its destiny was determined when Sequoia Union High School District annexed to the Junior College District in 1961, at which point the master plan of the District was amended to provide for a college in the south part of San Mateo County.

The magnificent 131-acre site for Cañada College was selected in 1962. The site, which is partly in Redwood City and partly in the Town of Woodside, was chosen because of its location along the Junipero Serra Freeway and because it ideally serves all parts of the south County.

Financing for Cañada College was provided by a bond issue for $12,800,000 in March, 1964. Intensive educational planning and architectural design proceeded through 1964-65. Grading of the site began in 1966 and a construction contract was awarded in April, 1967. The campus opened in September, 1968. In its present stage it represents an investment of $13 million, and provides 241,000 square feet of usable space.

The College takes its name from Cañada Road, the highway which borders the site on the west. The Spanish word "cañada" means long valley.

The District

San Mateo Junior College first offered classes in 1922 at the Baldwin Campus in downtown San Mateo—with an initial enrollment of 35.

At first the District included only San Mateo Union High School District, but it grew to include Jefferson Union High School District and Half Moon Bay (now Cabrillo Unified School District) in 1937, Sequoia Union High School District in 1961, and South San Francisco Unified School District in 1966. At present the only portion of San Mateo County outside the District is the La Honda-Pescadero Unified School District.

Enrollment and offerings of the San Mateo Junior College expanded slowly in the first 25 years, with a maximum of 1650 students. Classes were offered at first in central San Mateo, at the Baldwin Campus and in Central Park, and after 1939 were also given on the Delaware Avenue Campus.

World War II veterans returned after 1947 in such large numbers as to require a major expansion of the College. At this time Coyote Point facilities were acquired to supplement other locations and for a time a "three-campus era" resulted.

The Junior College became College of San Mateo in 1954 and along with the change in name came a transformation of the role of the institution to serve the rapidly expanding Peninsula. Awareness of the need for long-range development led to the adoption of a master plan in 1957 and the passage of a bond issue which funded a campus in west San Mateo for College of San Mateo.

The events of 1963-64 which created Cañada and Skyline Colleges also led to the acquisition of a fourth site along the coast south of Half Moon Bay. The District is now in a position to satisfy the community college needs of its residents for at least the remainder of the 20th Century.

Philosophy of the College

Cañada College holds that these beliefs and concepts are vital to the fulfillment of our objectives:

(1) We believe that the individual possesses dignity, and we encourage him to recognize his worth and to make his own unique contributions to our society.

(2) We believe that we must exert educational leadership in identifying and serving the educational needs of the community.

(3) We recognize that each discipline has its own integrity and that the College has a responsibility to achieve a balance between specialization and generalization in the organizing and presenting of subject matter.

(4) We think it is important to include all members of the College community in the shaping of class content, curriculum and College policy.

(5) We recognize that students come to us with a variety of expectations and that they possess different degrees and kinds of intelligence and skills.

(6) We believe the heart of the College to be the student and believe that close student-faculty relationships contribute to learning and to the kind of atmosphere in which learning can be reciprocal.

APPENDIX F

VITAE OF INSTRUCTORS IN PARAPROFESSIONAL PROGRAM

VITA

Kenneth D. Kennedy
Department of Political Science
Cañada College
4200 Farm Hill Boulevard
Redwood City, California

PERSONAL DATA

Born in San Francisco, California, October 20, 1942. Attended elementary school in Belmont, California. Graduated from Mills High School, Burlingame, California.

EDUCATION

Attended junior college at College of San Mateo. Received Associate of Arts (1962) with a major in History.

Bachelor of Arts, San Francisco State College (1965) with a major in Political Science.

Master of Arts, San Francisco State College (1966) with a major in Political Science. Thesis: "Cybernetics in Political Science". This work reviewed the theories of David Easton, Karl Deutsch and others in terms of the cybernetic approach to political theory.

Presently working Ph.D. at the University of Kentucky. Received "unconditional pass" on doctoral preliminary examinations.

PROFESSIONAL INTERESTS

My area of interest is American Government, especially American political process. My overriding interest is in American judicial process and Consitutional development. I am also interested in researching the role of the prosecutor in the American trial court process.

ORGANIZATIONAL AFFILIATION AND PROFESSIONAL EXPERIENCE

Pi Sigma Alpha	San Francisco State College University of Kentucky

Research Assistant, Department of Political Science, University of Kentucky.

BENNETT B. KILPACK
Social Science Division
San Mateo Community College
2040 Pioneer Court
San Mateo, California

EDUCATION

M.S. Sociology, Southern Oregon College, Ashland, Oregon

B.S. Sociology, 1959, Southern Oregon College, Ashland

PROFESSIONAL EXPERIENCE

Director, Child Development Center, Jackson County, Oregon

Supervisor of Staff Training, Orientation, Intensive Treatment and Out-Professing (Counseling Department), Thiokol Job Corps Center, Clearfield, Utah

Instructor, College of San Mateo, Sociology Department

Director-Administrator, University Day School, Menlo Park, California

Director, Juvenile Hall, Del Norte County Probation Department, Crescent City, California

Counselor, Ashland High School, Medford Senior High School

Assistant Director, Bar "O" Ranch for Boys, Del Norte County Probation Department

Senior Group Supervisor, Hillcrest Juvenile Hall, Belmont, California

Assistant Director, Upward Bound, Pacific University, Forest Grove, Oregon

Assistant Professor, Sociology, Pacific University, Forest Grove, Oregon

Director, Head Start Program, Jackson,Oregon

CERTIFICATES

State of California - Life Adult Credential

State of California - Life Junior College Credential

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VITA

PATRICIA PALLISTER O'BRIEN
Cañada College
4200 Farm Hill Blvd.
Redwood City, California

PERSONAL DATA

Birthdate, September 13, 1936

EDUCATION

B.A. Honors, Michigan State University, major in philosophy, June 1958.

M.A. High Honors, University of Maryland, major in student personnel administration, minor in counseling and guidance, internships in student activities and placement offices, August 1964.

Summer institutes in Junior College student personnel administration at Michigan State University, summer 1966 and Stanford University, summer of 1968.

Graduate work at University of Arizona, Stanford University and University of Santa Clara, 75 graduate semester hours beyond B.A.

PROFESSIONAL EXPERIENCE

Graduate Fellow and Residence Hall Counselor, University of Maryland, College Park, Maryland.

Student Assistant (Education), Bureau of Indian Affairs, U.S. Department of Interior, Washington D.C., prepared a report of the guidance program in Federal Indian Schools.

Assistant Dean of Women, University of Arizona, Tucson, Arizona.

Counselor, Ohlone College, Fremont, California, Counseling and Student Activities Director.

Dean of Women and Counselor, Cañada College, Redwood City, California.

ORGANIZATIONAL AFFILIATIONS

American Personnel and Guidance Association

American College Personnel Association
    National Advisory Commission TV - The College Student 1971-1974

California Teachers Association

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VITA

James Morgan Upton
Social Science Division
San Mateo Community College
2040 Pioneer Court
San Mateo, California

EDUCATION

University: Gonzaga University, A.B. Honors Classical, June 1957

Graduate: Gonzaga University, A.M. Philosophy, May 1958

Seattle University, M.S. Mathematics, May 1962, National Science Foundation, Summer Institutes

Santa Clara University, Theological Studies. Three of four years toward S. T. M. degree.

PROFESSIONAL EXPERIENCE

Bellarmine High School, Tacoma, Washington, 1958 - 1965

Seattle University, Instructor in Philosophy (Logic, Metaphysics) during Spring Quarter, 1964 and Instructor in Honors Program, academic year of 1964-1965.

Instructor in Philosophy (Seminar on Teilhard de Chardin) during Spring Quarter, 1965.

San Jose State

College of San Mateo

CERTIFICATES

Provisional General Certificate, Washington State, 1958-1963

Standard General Certificate, State of Washington, valid from July 1, 1961

Life Secondary June 1967, California

Life Junior College June 1967, California

APPENDIX G

PARTICIPANTS IN THE PARAPROFESSIONAL PROGRAM IN D,D&E

Fall Semester, 1971

Cañada College, San Mateo Community College District

Gabriel - Age 23, Black

Male, married. Lives in East Palo Alto. Graduate of Abeokuta High School, Abeokuta, Nigeria. Completed 31 to 45 units of credit at Skyline College before enrolling in DD&E courses.

Howard - Age 20, Caucasian

Male, single. Lives in San Carlos. Graduate of San Carlos High School. Completed 31 to 45 units of credit at Cañada College before enrolling in DD&E courses.

Lawrence - Age 19, Caucasian

Male, single. Lives in Redwood City. Graduate of Sequoia High School. First-time freshman student at Cañada College.

Mario - Age 43, Caucasian

Male, married. Lives in Redwood City. Graduate of Jefferson High School in 1947. Moved to this area from Seattle, Washington. Has completed 46 to 60 units of credit at San Francisco State College and other colleges before enrolling at Cañada.

William - Age 24, Caucasian

Male, single. Lives in Redwood City. Graduate of San Carlos High School. Has completed 16-30 units of credit at College of San Mateo.

Barnett - Age 21, Caucasian

Male, single. Lives in Redwood City. Graduate of Woodside High School. Born in Long Beach, California. Has completed 31 to 45 units at Cañada College.

Bruce - Age 19, Caucasian

Male, single. Lives in Menlo Park. Graduate of Woodside High School. Born in Los Angeles, California. Has completed 15 units at Cañada College.

Gayle - Age 22, Caucasian

Female, married. Lives in Redwood City. Graduate of Pioneer High Schoo, San Jose. Born in Ventura City. Has completed 16 to 30 units at San Jose State College, and Palomar College, before attending Cañada College.

Lori - Age 18, Caucasian

Female, single. Lives in Redwood City. Graduate of San Carlos High School. Born in San Francisco, California. First-time freshman.

John - Age 18, Caucasian

Male, single. Lives in Menlo Park. Graduate of Woodside High School. Born in Rochester, New York. First-time freshman.

George - Age 20, Oriental

Male, single. Lives in Menlo Park. Graduate of Menlo Atherton High School. Born in Seoul, Korea. First-time freshman.

Susan - Age 20, Caucasian

Female, single. Lives in Millbrae. Graduate of Capuchino High School. Has completed 16 to 30 units at College of San Mateo.

David - Age 27, Caucasian

Male, single. Lives in Menlo Park. Graduate of Minerva High School, in Illinois. Has completed 15 units at Cãnada.

Jimmy - Age 20, Caucasian

Male, single. Lives in Redwood City. Graduate of San Carlos High School. Has completed 15 units at Cañada College.

John L. - Age 19, Caucasian

Male, single. Lives in Atherton. Graduate of Menlo-Atherton High School. Has completed 15 units at Cañada.

Sylvia - Age 21, Caucasian

Female, single. Lives in Half Moon Bay. Graduate of Woodside High School. Has attended University of Pacific, Stockton; and Cabrillo College in Santa Cruz, and completed sixteen to 30 units before attending Cañada. Born in Boston, Massachusetts.

Shamin - Age 26, Indian

Male, single. Lives in Redwood City. Graduate of St. Joseph's College, Calcutta, India. Born in Calcutta, India, is a foreign student completing 16 to 30 units at Canãda College.

Linda - Age 22, Caucasian

Female, married. Lives in Redwood City. Graduate of Arroyo High School, San Mateo, California. Previously attended California State College, at Hayward, and Chabot College, completing up to fifteen units. Born in Alameda, California.

Timothy - Age 20, Caucasian

Male, single. Lives in San Carlos. Graduate of San Carlos High School. Born in Redding, California. Is completing 15 units at Cañada College.

Richard - Age 18, Caucasian

Male, single. Lives in Redwood City. Graduate of Menlo Atherton High School. Born in San Francisco, California. First-time freshman.

Edmund - Age 24, Black

Male, single. Lives in East Palo Alto. Born in Lagos, Nigeria. Is attending Cañada on foreign student visa. 16 to 30 units.

Samuel - Age 23, Caucasian

Male, single. Lives in Redwood City. Born in Tel-Aviv, Israel. Graduate from "Kalai" Givatain, Israel. Now taking 15 units at Cañada College.

John - Age 20, Caucasian

Male, single. Lives in San Mateo. Graduate of Hillside High School. Is completing 15 units at Cañada College. Born in Evanston, Illinois.

Thomas - Age 29, Caucasian

Male, married. Born in Richmond, Virginia. Attended High School there. Completing 15 to 30 units.

Don - Age 27

Male, single. Born in Pannipitiya, Ceylon. Attended high school there. Also attended Institute of Practical Technology, in Ceylon. Born in Ceylon, is a citizen of that country and attending Cãnada on a student visa, having completed up to 30 units.

Arthur - Age 31, Caucasian

Male, married. Graduated from Escondido High School. Born in Calgary, Alberta, Canada, is an immigrant. Previously attended Idaho State College in Pocatello, Idaho, Boise Junior College, in Boise, Idaho, and Merritt College in Oakland; having completed up to 60 units.

Elizabeth - Age 19, Caucasian

Female, married. Lives in Menlo Park. Born in Sharon, Connecticut. Graduated from Menlo Atherton High School. First-time freshman.

Rosemarie - Age 22, Caucasian

Female, single. Lives in Redwood City, California. Graduate from Sequoia High School. Is completing up to 30 units at Cañada.

Frank - Age 19, Caucasian

Male, single. Lives in Menlo Park. Did not graduate from high school. Born in San Francisco. Is completing up to 15 units at Cañada College.

Barbara - Age 20, Caucasian

Female, single. Lives in Hillsborough, California. Graduate of San Mateo High School. Born in San Mateo. Is taking up to 15 units at Cañada College.

William S - Age 20, Caucasian

Male, single. Lives in Menlo Park, California. Born in Rochester, New York. Completed high school there. Also attended S.U.N.Y. in New York, and has up to sixty units.

Nelia - Age 18, Caucasian

Female, single. Lives in Belmont, California. Born in San Francisco. Attended Notre Dame High School.

David W - Age 23, Oriental

Male, single. Lived in Hongkong, and is a citizen of Britain. Has attended Royden House College, and New Method College, apparently both in Hongkong.

Donald - Age 22, Caucasian

Male, married. Lives in Menlo Park, California. Born in Oakland, California. Graduated from Westmoor High School. First-time freshman.

Margaret - Age 22, Caucasian

Female, married. Graduated from Westmoor. Born in San Francisco. Is taking up to 15 units at Cañada College.

Merritt College

Catherine - Age 32, Black

Cathy attended high school in Cleveland and later received a certificate of Secretarial Arts from the Ashville Industrial Education Center in North Carolina. Since then she has earned 70 credits in Afro-American Studies from Merritt College in Oakland. Cathy has worked as a legal secretary and as a medical secretary and has been at the Far West Laboratory for the past two years, first as a secretary and then as Office Manager. She hopes to gain more knowledge and proficiency in Educational Research and Development and hopes to go on for a higher degree after she completes the DD&E program.

Fannie - Age 30, Black

Fannie went to high school in Memphis and attended Tennessee State College for one year in Business Education. She has taken courses since then at Merritt and at the University of California Extension. Fannie worked for two years at the post office as Mail Clerk and doing keypunch. She worked for the IRS from 1963 to 1965 retrieving and filing income tax returns. From 1965 to 1968 she did coding, supervising, and keypunch for the Bay Area Transportation Study Commission. Fannie has been at the Far West Lab since 1969 as Research Intern, a job which entails collecting and organizing data and field testing. Her studies in DD&E pertain directly to the field in which she is working and she hopes to better her chances for advancement.

Nathaniel - Age 29, Black

Nathaniel went to high school in Houston and then worked for five years as a merchant seaman. He has been at the Far West Lab for the past four months as Mail Clerk. Nathaniel is interested in accumulating college credits and would like to get some training so he can enter the field of Educational Research and Development.

Olga - Age 47, Caucasian

Olga has done course work at Merritt College in the field of Liberal Arts. She has worked as a secretary since 1942 at Superior Sheet Steel (1942-47), Colorado State University (1953-56), United States Department of Agriculture (1962-70) and the Far West Laboratory (1970 to the present). Olga would like to raise her professional level as a result of DD&E courses and is interested in expanding her areas of knowledge and keeping up with change in the field of education.

Beverly - Age 36, Black

Beverly attended Oakland Technical High School and worked for the Oakland Public Schools as a clerk from 1968 to 1969. She came to the Far West Laboratory in 1969 as a clerk-typist in the Personnel Department. She was Employee Interviewer for six months before she was promoted to Supervisor of Personnel Administration in July of 1971. Beverly would like to use the DD&E courses as credit toward a higher degree and to help her with the work she is involved with now.

Jacqueline - Age 23, Black

Jackie graduated from Berkeley High School and then took courses in Business at Merritt College for two years. She has been at the Far West Lab for the last year and a half as a secretary for Forward Planning. She is involved in the DD&E program because she is interested in furthering her education and improving her employment opportunities.

Contra Costa College

Robert - Age 26, Black

Robert attended Contra Costa Junior College for two years. He worked for a year at the South Side Center in Richmond as a typist and later with the Concentrated Employment Program as Supply Clerk. Robert is now employed at the Far West Laboratory as Research Trainee. He is interested in making social change through education.

Deborah - Age 21, Black

Deborah attended Contra Costa Junior College for six months. She worked there during the summers of 1969 and 1970. Deborah has also been employed by Montecino Elementary School in Martinez, California. She has been with the Concentrated Employment Program and is now employed at the Far West Laboratory as Research Trainee.

Dexter - Age 24, Black

Dexter attended Contra Costa Junior College for one semester in Business. He has worked for Safeway, Transbay, Standard Oil of Richmond, and Western Can Company. Through his interest in science and his involvement with the Concentrated Employment Program, Dexter obtained employment at the Far West Laboratory as a Research Trainee in the New Careers Program.

Macky - Age 22, Black

Macky attended the Mt. Hood Community College in Gresham, Oregon for the better part of a year where he studied music. He has worked with the White Stag Manufacturing Company, the Rheem Manufacturing Company, and Safeway's Richmond warehouse. Through his involvement with the Concentrated Employment Program, Macky obtained employment as Research Trainee in the Far West Laboratory's New Careers Program.

Linda S - Age 20, Black

Linda attended the Linton Business School for one semester and Contra Costa Junior College for one year. She has worked as a salesperson with C-Shore Sales and as a Clerk-Carrier at the Berkeley, California Post Office. She has been involved in the Concentrated Employment Program since April of this year and is now employed in the New Careers Program at Far West Laboratory as a Research Trainee.

Ernest - Age 25, Black

Ernest received a Certificate of Completion from Prentiss Junior College in Prentiss, Mississippi in 1966. He attended Huston-Tillotson College in Austin, Texas the following year. Ernest studied Psychology and Child Development. He substitute taught at the junior high level in Gulfport, Mississippi and worked as a day care instructor in Austin, Texas. Ernest wishes to expand his career in education through his involvement in the D,D&E program and his employment at the Far West Laboratory as Research Trainee.

Frederick - Age 23, Black

Frederick received his high school diploma at the Tracy Adult School in Tracy, California. He worked for six months at the Naval Weapons Station in Concord, California. Frederick obtained employment at the Far West Laboratory as Research Trainee as a result of his involvement with the Concentrated Employment Program.

Rosella - Age 26

Rosella attended high school in Fresno and Berkeley, California and majored in business. She worked as a waitress from 1966 to 1969. Rosella is now employed at the Far West Laboratory as a result of her involvement with the Concentrated Employment Program.

APPENDIX H

PLAN FOR INITIATION OF D,D&E MA SPECIALIZATION - S.F. STATE COLLEGE - FALL 1971

To:	Dr. Paul Hood Dr. Bela Banathy	Date:	March 15, 1971
From:	George Hallowitz	Re:	Entry-Level Professional Program

Part I

On 28 January 1971 a first rendering of a plan regarding above captioned subject was prepared as a working draft to test out with appropriate administrative and instructional personnel at S.F. State College. This working document appears as Anticipated Role of San Francisco State College Implementation Fall 1971-S.F. State College.

During February 1971 this working draft was reviewed in a series of conferences and meetings with results indicated:

Meeting Participants	Results
1. Conference with Dean Dwight Newell School of Education	1. The Dean approved the working draft and proceeded to arrange for the subsequent meetings and conferences (as specified in Part III).
2. Department of Educational Administration faculty	2. Accepted unanimously proposed plan - with agreement to provide specialization in D,D&E in its MA program. Also agreed to sponsor Consortium-developed courses appropriate to this specialization. Agreement of the Department contingent on special admissions quota to be provided by the college (subsequently granted).
3. Meeting with President Hayakawa, Exec. Vice President Edwards, Assoc. Academic Vice President Einhorn, Dean of Admissions Stone and Dean of School of Education Newell.	3. Gave general endorsement of the proposed program and allocated a special graduate admissions quota of 20-25 students for Fall, 1971.[1]

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[1] Subsequently Vice President Einhorn in a memorandum to Dean Newell raised a number of questions to which Dean Newell indicates he can provide satisfactory responses.

4. Series of conferences with Dr. Jane Zahn, Chairman, Department of Interdisciplinary Studies in Education.	4. Arranged for Dr. Hallowitz to present proposal to faculty of Department of I.S.E. Tentative agreements on mode of cooperation between Department of I.S.E. and Department of Ed. Adm. concerning sponsoring of courses in D,D&E specialization and criteria for allocating students between the two Departments.
5. Meeting with Faculty of Department of Interdisciplinary Studies in Education.	5. Reviewed proposed plan. Those present approved. For lack of a quorum official Dept. vote postponed until next meeting. In the interim the Dept. proposed that Dr. Sawin and Dr. Hallowitz be available to confer with those I.S.E. Dept. members who were not present at this meeting.[1]
6. Conference with Chairman of Graduate Committee (also serves as School of Education Graduate coordinator) Dr. Paul Hale to review proposed plan.	6. Graduate Coordinator was supportive and arranged for inclusion of this subject at next meeting of School of Ed. Graduate Committee.
7. Meeting with Graduate Committee, School of Education. Dr. Zahn and Dr. Hallowitz presented proposed plan.	7. Graduate Committee unanimously expressed support of the plan although no official action was needed or taken.
8. Meeting with Dr. Castleberry, Dean of Graduate Studies for the College; Dean Newell, Dr. Zahn, and Dr. Hallowitz.	8. Dean Castleberry supported the plan. Felt it was appropriate to include D,D&E as a specialization (within existing research emphasis) on each of the two Departments' MA programs and indicated he would expedite approval action on the two courses in the specialization to be offered this Fall under designation Ed 277.

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[1] Dr. Hallowitz and Dr. Sawin scheduled these conferences and these were held for any who were interested.

9. Conference with Orin Deland, College Business Manager.	9. Determined method of purchasing instructional services for instructors of the two Fall 1971 courses and costs.

As a result of the process (1 - 9 above) the following Plan for Implementation with Accompanying Budget is proposed:

Plan for Implementation
MA Specialization D,D&E at S.F. State College

Action needed	By whom	Completed by what date
1) Formal acceptance of D,D&E specialization in MA Degree program of Dept. of Interdisciplinary Studies in Education.	Faculty - Dept. of I.S.E.	March 8
2) Determinations regarding internships a) number available by agency b) conditions hours per week; daily schedule; length of internship; salary for the intern; other conditions specified by each employing agency.	Dr. Joe Ward of Consortium and SFS staffs	March 31
3) Determination regarding recruitment and selection: a) number of students for Fall b) racial mix c) number now employed by agencies d) number that will be assigned as interns e) selection criteria	Consortium staff	March 31
4) Active recruitment including written description of the Program, internship possibilities etc., to be available to interested candidates	a) in the agencies Dr. Ward b) at S.F. State Consultant on coordination[1]	April 15

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[1] See section on Personnel

Action needed	By whom	Completed by what date
5) Interviews with each interested candidate; selection decisions and referral to S.F. State College for admission.	a) in the agencies Dr. Ward b) at S.F. State Consultant on coordination[1]	May 15
6) Initiation of steps leading to approval of: Data and Information Course Planning and Design Course	Dr. Zahn Dr. Hallowitz	March 15
7) Counseling with students who have been admitted to the college on their MA programs.	Dr. Zahn Dr. Hallowitz	May 31
8) Employment of Instructors:		May 31
Data and Information Course	Dept. of Interdisciplinary Studies	
Planning and Design	Dept. of Ed. Admin.	

---

[1] See section on Recruiting and Selection.

Recruiting and Selection

At S.F. State College there are three principal approaches for recruiting:

1) San Francisco Consortium.
This group has an office on the campus. Its resident counselor is in touch with all S.F. State minority students. As soon as he gets a written description of the program, requirements, internship possibilities, he is ready to determine interest and do some preliminary screening and referral to the Consultant on coordination.

2) Placement Center - S.F. State College.
This office is in contact with a majority of recent S.F. State graduates and current graduating seniors.

3) Notices to appropriate college departments and publicity in campus student newspapers.

We propose that the consultant on coordination interview at the Consortium offices in Berkeley all interested candidates. In addition each candidate (this test can be group administered) is to read and comment in writing on a research report similar to what a developer may have to use in the job setting. This will be a gross measure of reading, comprehension, critical thinking and writing ability.

Utilizing personal data information, interview protocols, test data (described above) each candidate is to be ranked by the Consultant on Coordination with final decision on selection to be the responsibility of a Consortium Staff Committee.

The successful candidates can then be directed to the process of applying to S.F. State for admission.

Personnel

A. Instructors

The Department of Educational Administration will need to select and appoint, in consultation with Consortium, an instructor for: Ed. 277.11 - Planning and Design and one section of Ed. 287.2 - 3 units - Internship.

The Department of I.S.E. will need to select and appoint in consultation with Consortium, an instructor for Ed. 277.12 - Data and Information - 3 units, and one section of Ed. 299 - Internship - 3 units.

These appointments will be for a full (Fall) semester with the Consortium purchasing the services through the college, if the instructor is a regular faculty member or by direct hire if such is not the case. If a regular member of the faculty, the Consortium courses will be part of the regular load (not an over-load) at rate of 25% monthly salary for each 3 units of instruction.

It is recommended that the same instructor, where feasible, teach the course and supervise the interns in his course. This will facilitate the close relationship that should exist between the class and the field. This would mean 6 units of D,D&E courses for each of the two instructors.

B. Consultant on Coordination

Role:

1) Recruit Fall candidates, interview and recommend to Consortium staff a ranked list for selection decisions.

2) Serve as liaison between Consortium staff (Berkeley) and S.F. State

3) Advise with Consortium staff (Berkeley) on maximum inter-facing of personnel, instructional and intern subsystems.

Plans read and approved

Original Signed By Dwight Newell
Dwight Newell, Dean
School of Education
S.F. State College

Original Signed By George Hallowitz
George Hallowitz, Chairman
Department of Educational Administration, S.F. State College

Original Signed By Jane Zahn
Jane Zahn, Chairman
Department of Interdisciplinary Studies
S.F. State College

Part II

Anticipated Role of San Francisco State College

1. Joint efforts between Department of Educational Administration and Interdisciplinary Studies in the School of Education to design (within existing M.A. degree) a specialization in D,D&E drawing on seven to eight packaged courses to be developed by the Consortium.

2. Offering of two of these courses (under Ed. 177 or Ed. 277 numbers) on an experimental basis in Fall, 1971.

3. Cost of course development and instruction to be underwritten by Consortium; laboratory and classroom facilities for these two courses to be located at Far West Laboratory in Berkeley and/or S.F. State College.

4. The two Departments in consultation with Consortium will select and employ the instructors for each of these three-unit courses.

5. In addition, a liaison Instructor -Counselor (also financed by the Consortium) will be employed in the same manner as (4) above. His duties will involve relating the course work to engineered internship experiences in employer agencies - plus responsibility of supervising the internship in cooperation with the employing agency personnel.

   In addition the liaison-Instructor-Counselor will be responsible for recruiting and selection of students, career counseling and general social and psychological support of students during the training phase. In recruiting, emphasis will be on candidates from multi-ethnic groups.

   All three of the staff members described in #4 and in this section will consult with the students on their learning experiences and generally perform the function of learning facilitators -- since a number of the course modules will be based on self learning.

6. In consultation with the Office of Admissions and the Dean of Graduate Studies, it is hoped that special arrangements can be made to admit 20 students into the college for the program for Fall semester 1971 and that a special graduate M.A. quota of 20 can be allocated for this purpose.

   Candidates will fall into two categories:

   a) Now employed in D,D&E roles, but desiring to gain further training leading to the M.A.
   b) Not employed, or employed in non-D,D&E roles, but desiring to prepare for a career in D,D&E by acquiring the M.A. Such students will derive support during training either through jobs they now hold or by compensation by the employer who is providing the internship. The Consortium is ready to finance registration fees and student instructional materials as needed.

Both categories a) and b) will need to qualify for admission to the College and to the Departments by meeting the usual standards for graduate work.

Implementation for 1971 at S.F. State College

Implementation will require the following steps presented here in an approximate sequential order:

1) Consult with the Dean of the School of Education (Dean Newell) who will be asked to review this entire document and to react to Parts II and III. As a result there may need to be some revisions in these two parts.

The Dean of the School of Education probably will wish to brief the President and Academic Vice President on the over-all aspects of the program.

2) Consultation with the Dept. of Ed. Administration, Interdisciplinary Studies in Education, the Graduate Coordinator of the School of Education (Dr. Paul Hale), the Graduate Committee of the School of Education, the Dean of Graduate Studies (Dean Castleberry) and the College Graduate Council.

The desired outcomes by April 1, 1971:

--approval by the two Departments of the D,D&E concentration in their existing M.A. program, probably through the utilization of elective units available in their M.A. degrees.

--approval by the Depts. of Ed. Adm. and Interdisciplinary Studies in Ed. of the two courses to be offered in the Fall of 1971 to carry the following numbers:
for 3 units -- Ed. 277.5 Information and Data Collection
for 3 units -- Ed. 277.6 Planning and Design.

--Forwarding the necessary requests for approval of these two courses to the School of Ed. Graduate Committee and to the College Graduate Council.

--Selection by the Departments (in consultation with the Consortium) of the three instructors. It is anticipated that the liaison instructor/counselor will begin on or about April 15 on a 1/2 time basis in the recruiting, selection and counseling role until June 1. During the summer he may be employed to participate in course development at the Far West Laboratory. From Sept. 15 to Dec. 15 he would be employed full time with heavy emphasis on the supervision of the interns and liaison between the two courses and the field experiences.

The two course instructors will be employed during summer months on course development at the Far West Laboratory and then will be retained as instructors starting Sept. 15 - each for a 3-unit teaching load.

3) Consultation with the Director of Admissions and the Dean of Graduate Study to facilitate the admission of 20 students for Fall 1971.

The desired outcomes by April 1, 1971:

--That admissions would be opened for this group although they are closed for Fall, 1971.
--That a special graduate M.A. admission quota of 20 can be assigned to this program for Fall, 1971.
--That recruiting and selection procedures be set up.

4) Monitoring the processes described above to provide (April 1 to December 15, 1971): Additional coordinating services and other assistance as needed to the College Departments, Office of Admissions, Student Personnel Office, Program Staff (3 instructors and Personnel officer) and to the students.

APPENDIX I

THE IMPLEMENTATION
OF THE
D,D&E CONSORTIUM PROGRAM
AT SAN FRANCISCO STATE COLLEGE

Entry-Level Professional Program

Prepared by:

Dr. George Hallowitz
July 12, 1971

The Implementation of the Consortium Program at San Francisco State College-- Entry Professional Program

I Departmental Auspices

The specialization in D,D&E is being offered as a concentration within the existing MA program in two departments: the Department of Educational Administration, and the Department of Interdisciplinary Studies in Education. (See Exhibits A & B for further details on the MA programs in each of these departments.)

II Course Offerings in D,D&E

The three D,D&E courses to be offered in the Fall Semester, 1971 are:

1. Information/Data Collection and Organization, Ed. 277, 3 units.

   Offered by the Department of Interdisciplinary Studies in Education. Instructor-- Professor E.I.Sawin of the same department.

2. Planning and Design, Ed. 277, 3 units.

   Offered by the Department of Educational Administration. Instructor-- Professor Lionel Olsen of the same department.

3. Engineered Internship in D,D&E, Ed. Ad. 287.2, 3 units.

   Offered by the Department of Educational Administration. Instructors-- Drs. Sawin and Olsen.

Dr. Sawin was nominated to teach the D,D&E courses by his department, and was appointed after consultation with the Consortium staff. The same procedure was followed with Dr. Olsen. Each of these men has been involved in developing the course to be taught.

In the spring of 1972 the following three additional courses in D,D&E will be available:

1. Evaluation (to be retitled "Assessing Effectiveness of Instructional Materials").

2. Communication Skills (to be retitled "Communication Skills for Processing Instructional Materials and Reporting Outcomes").

3. Developmental Engineering (to be retitled, "Development of Instructional Materials").

Each of these courses will carry a value of 3 units and an additional unit for the accompanying field experience. The field experience will be required for those students who have completed the Engineered Internship (Ed. Ad. 287.2).

Professor Ardelle Llewellyn, a member of the Department of Interdisciplinary Studies in Education, is currently developing the Communication Skills course and will teach it in Spring, 1972.

Professor Hal Jonsson, of the same department, is engaged in developing the Evaluation course, which he will teach in the spring.

The Developmental Engineering course is as yet unassigned.

The two professors mentioned above were appointed to the D,D&E courses after a process similar to the one followed in the Olsen-Sawin designations.

All five courses have been discussed with the Dean of Graduate Studies. He has approved the interim 277 designations for the two courses for Fall 1971 as experimental offerings. He has also approved formal submission of these five courses for college review in Fall 1971, leading to the assignment of regular course numbers and inclusion in the college catalogue.

III Student openings

The college has approved a special quota of 25 admissions for students entering either of the two departments who wish to specialize in D,D&E. The student is helped to determine his choice of department in his initial interview. Generally those candidates who plan a D,D&E career in a leadership capacity in Education are counselled to select the Department of Educational Administration, while those who see themselves as Developers in other agencies or in industry are more likely to choose the Department of Interdisciplinary Studies in Education. To date, approximately two-thirds of the candidates have opted for the Department of Interdisciplinary Studies in Education.

IV Preliminary Model of a Typical Program - Leading to the MA in Education with a Specialization in D,D&E.[1]

Semester	D,D&E Courses	D,D&E units	Other units	Total units
Fall, 1971	Planning & Design,	3		
	Information/Data Collection & Organization	3		
	Engineered Internship[2]	3	3	12
Spring, 1972	Evaluation	3		
	Communication Skills	3		
	Developmental Engineering	3	3	12
Fall, 1972			12	12
Totals		18	18	36

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1. For a student carrying 12 units a semester.
2. The Engineered Internship will usually take two semesters.

APPENDIX J

PROTOTYPE TESTING OF *DATA ANALYSIS* MODULE

AIR

There were two main objectives for the prototype test of the module on data analysis. First, we wanted to acquire students' reactions to the module format and style, to the activities, and so forth. Second, we had specific concerns about the amount of material presented in the module--could the students master that much information in the time allotted? was enough coverage given to the various topics? As a result, the test was conducted in conditions as close to those in which the module will be used as possible.

Sample Selection

An announcement was placed at the Student Employment Office at Stanford University stating that students with no prior experience in statistics were needed to test a unit on statistics. The work should be completed in forty hours (2 weeks of half-time work) and the students would receive $50 for their work. From those who responded to the advertisement, five students were selected (the first five who were interested in it).

The sample consisted of three girls and two boys, either sophomores or juniors in college. One of the girls was Black. None of the students had had a course in statistics, or a background in education (their majors were biology, english, psychology, and sociology).

Test Procedures

When the students arrived at AIR they were given a copy of the module and shown to a room where they could work. All the reference books and laboratory materials were kept in this room. They were told that they were to work at their own rate, at whatever hours they wished. I mentioned that since the materials were all at AIR, they should probably do their work here, but beyond that their schedule was up to them, as long as they finished within the required time period.

While I would not be "teaching" the modules, I would be available for questions whenever they had any. I explained that I was interested in finding out their reactions to the module--what they liked and disliked, what sections were too easy or too hard, whether or not things were explained clearly, and so forth. I asked them to make notes right on the module when they had a comment--that I would look at their notes after they had completed the module and then, if they wanted me to, return the modules to them.

After that, the students came out for approximately four hours a day, sometimes longer on some and less on others. They frequently asked questions and on one occasion we held a general discussion of a point they had difficulty understanding.

Upon completion of the module, they took the module test which had been developed by HumRRO. Then, they completed a short reaction sheet asking them to estimate the amount of time they had spent on the module, what they thought of the module, how they would compare it to traditional courses, and so forth.

Outcomes of the Test

One of the girls was unable to complete the module, mostly she said, due to a "mental block" against mathematics and statistics. The other students all completed the module in from 22 to 35 hours. They were able to pass the "hardest" items in the test for the most part, although often their answers were not totally correct (they often didn't fully understand why certain operations were done or why certain conclusions could be drawn). However, they did seem to have a general grasp of the concepts and terms involved. Most of the difficulty occurred in connection with the sampling and hypothesis testing procedures; the rationale underlying these processes was not clear to them.

The students generally liked the module approach to instruction, although they felt that direct teacher involvement at some points would have been helpful. They also liked the third level of discourse comments. They did feel, however, that additional practice and more problems would be useful. They also had several specific comments about particular sections of the module--unclear explanations, errors (typographical and computational) that had slipped through, and so forth.

Revisions Based on Feedback

The following revisions were made in the module.

1. Minor changes were made throughout the module to correct errors.
2. Explanatory sections were reviewed and, in some cases, revised to make them clearer.
3. Some of the readings were changed to other, clearer, references.
4. Introductory and summary sections were added to each episode to emphasize what each episode dealt with and how it related to the other episodes.
5. Review activities were added at selected points where the instructor could review and/or explain certain sections.
6. Episode 6 (Sampling) was mostly rewritten, giving more explanation of why sampling was important and how it related to other procedures such as probabilities based on the normal curve and hypothesis testing.

September 1, 1971

--Lauri Steel

APPENDIX K

THE ENGINEERED INTERNSHIP

As Part of

THE E, E, & E SPECIALIZATION of the M. A. in EDUCATION

Offered by

THE DEPARTMENTS OF EDUCATIONAL ADMINISTRATION
AND INTERDISCIPLINARY STUDIES IN EDUCATION

at

SAN FRANCISCO STATE COLLEGE

Entry-Level Professional Program

Prepared by: Dr. George Hallowitz
July 6, 1971

The Engineered Internship as Part of the D,D&E Specialization of the MA in Education at San Francisco State College:

1. Introduction

Each student will enroll in approximately five of the seven specialized D,D&E courses as part of the MA degree offered by Departments of Educational Administration and Interdisciplinary Studies in Education.

Throughout the specialization, concurrent with the D,D&E courses each student will have a supervised field experience. This will be planned jointly by the instructor, the agency supervisor, and the students, to insure that the knowledge and skills developed in the courses are transferred and reinforced in the work situation. In most cases the instructor will serve as the college supervisor for the field experience, thus insuring the maximum integration between the course content and the field practice.

To provide for a careful monitoring of the student's progress and for individualizing his academic and field training, a detailed monitoring system is provided, which will be reviewed more extensively later in this report. It will suffice to mention here the basic instruments to be used for these purpose s, (see forms at end of this report).

Form I Job Assignments-Field Experience

Form II Job Performance Evaluation

Form III Student's Log-Field Experiences

2. Field Study in D,D&E - Ed. Ad. 287.2

This is a 3 unit course and will require at least 120 hours of intern practice. It should be recognized that the 120 hours is a minimum and that the important determinants as to the length of the internship should be:

a) The kind, number, and duration of the internship experiences each student needs.

b) The success of the student in meeting the performance criteria for each job assigned.

To provide an early exposure to D,D&E as a field of practice all students will be enrolled in Ed. Ad. 287.2 as they begin their first semester. Each college instructor/supervisor will have 6 to 8 interns, thus insuring a highly individualized approach to each trainee.

Some students will be simultaneously enrolled in more than one D,D&E course during their first semester. In these cases the instructor/supervisor will consult with the instructor of the other course (or courses) to make certain that the field experiences are closely related to each D,D&E course.

The instructor/supervisors will plan for a number of joint supervisory visits for those students whom they share in D,D&E courses.

In preparation for the initial conference in which the content of the field experience will be planned, each student who will be doing an internship in a product development agency should:

a) Review existing and projected development projects of the agency in order to identify:

    1) additional projects that may be needed

    2) the D,D&E skills that are required for the projects that are underway, projected, and that are needed.

b) Prepare a report for the instructor/supervisor with a copy to the on-site supervisor of the findings.

Those students who will be doing an internship in a public school will be expected (prior to the initial planning conference) to describe in a written report to their instructor/supervisor, with one copy to the on-site supervisor:

a) At least five development projects that might be useful to the school.

b) The D,D&E skills associated with each of these.

3. Planning the Field Experience

The initial conference for planning the field experience should be tripartite, involving the college instructor/supervisor, the agency supervisor, and the student participant, preferably at the agency site. The primary purpose of this meeting is to plan the initial experiences in detail and to project the sequencing of jobs to be accomplished for the entire 120 hours. Form I (see Appendix A) is to be completed during the conference. In addition, the discussion should make clear the responsibilities of each of the three parties as follows:

a. On-site Supervisor

1) In consultation with the instructor/supervisor and student, plans the work to be done by the trainee.

2) Assists and guides the trainee as needed.

3) Communicates (gives feed-back) to the instructor/supervisor suggested modifications in course work; or those aspects of the course work where transfer to the job situation is effected.

4) Evaluates job performance and completes Form II (see Appendix B).

5) Participates in a monthly evaluation conference with the trainee and the instructor/supervisor.

6) Determines with the instructor/supervisor and the student when Ed. Ad. 287.2 has been satisfactorily completed with a grade of Pass. It is anticipated that the internship will usually take at least two semesters with a Hold grade to be filed at the end of the first one.

b. Instructor/supervisor

1) Participates in planning the internship and records the conference agreements on Form I.

2) Visits internship site at least once a month or more frequently as needed to observe internship activity.

3) Participates in the monthly evaluation conference (see 3.a.5). Records any changes in jobs to be done on Form I.

4) Reviews the Student's Log, Form III

5) Reviews the Job Performance Evaluation, Form II, which has been prepared by the agency supervisor (see 3.a.4).

c. Student

1) Keeps the daily log of activities, Form III.

2) Carries out agreed upon job assignments.

3) Participates in the Planning and Evaluation Conferences.

4) Assumes the responsibility for suggesting course changes or intern experiences particularly suited to his needs.

4. Differentiated Field Experiences

The students in D,D&E specialization who will be starting the program in the Fall of 1971 seem to fall into three categories, each of which will need a differentiated approach as the internship is planned by the three parties to the process: the college instructor/supervisor, the agency supervisor, and the student.

Category 1. - The student who is already employed by a D,D&E agency, i.e., Far West Laboratory for Educational Research and Development, American Institutes for Research, Educational Testing Service, etc.

For this group of students it will be important to arrange for a modification of their regular work responsibilities so that they can have the opportunity to apply the knowledge and skills being learned in their D,D&E courses. This means that the employing agency needs to be sufficiently adaptable to do this and to view the internship component as an investment in staff training.

In some cases, the internship experience will not be available in the unit of the agency in which the student is presently working. In this case the agency must make arrangements to transfer the student to some other unit where the needed experiences will be available.

Category 2. - The student is completely new to D,D&E and is assigned as a voluntary or paid intern in a D,D&E agency.

These students will need time and special opportunities to become familiar with their new setting, its people and their roles, and the purpose of the agency and the unit in which he is working. If it is considered part of the internship as it should be, this could be a "Learning experience in the structure of organizations, the dynamics of the interplay between its formal and informal constellations-- with skill practice in the human relations dimension."

Category 3. - The student who is employed as a teacher in an elementary or secondary school.

These students will need guidance in developing opportunities within a school setting to work on educational products. The instructor/supervisor will need to prepare both the intern and the on-site supervisor for a D,D&E approach to educational problems.

FORM I

JOB ASSIGNMENTS--FIELD EXPERIENCES

Instructions for use of Form I

1) The appropriate sections are to be completed by the college instructor/supervisor during the initial planning conference.
2) Amendments are to be completed by the college instructor/supervisor after the Evaluation Conference.
3) Copies should be sent to:
--the departmental college advisor, for the student's cumulative folder.
--the agency supervisor.
--the instructors of other D,D&E courses in which the student is currently enrolled.
--the student.

1. Student's Name ______________________________

Home address ______________________________

Home phone ______________

2. Currently enrolled in D,D&E courses in the Department of Educational Administration or Interdisciplinary Studies in Education:

Course # and course title	*Instructor*	*Date enrolled*

3. A brief description of student's prior experience in D,D&E:

4. Description of internship jobs as planned in joint conference held

______________________(date)with conference participants:

______________________ ______________________

On-site supervisor Instructor/supervisor

____

Trainee

5. Jobs to be done:

(for *each* *job indicate:* *°beginning and due date*
°time in hours required for completion
°operations trainee is expected to perform
°skills the task will develop and knowledge increments.
°resources available to the trainee--human and material
°criteria for successful performance.)

Job #1

1) Beginning and due dates ______________ to ______________.

2) Time required in hours for completion ______________.

3) Operations: ______________________________

____

______________________________.

4) Skills and knowledge: ______________________________

____

____

5) Resources: ______________________________

____

______________________________.

6) Criteria for a successful performance: ______________________________

____

____

K-8

Job #____

1) Beginning and due dates:________________to____________________.

2) Time required in hours for completion ________________.

3) Operations:____

____

____

____.

4) Skills and knowledge: ______________________________

____

____

5) Resources:____

____

____.

6) Criteria for a successful Performance:________________________

____

____.

6. Amendments:

Instructions for this section:

To be used after Evaluation Conferences to record any changes in Intern Experiences. Copies should go to each individual who received the initial copy of Form I - sections 1-5. The Instructor/supervisor is to complete this section and arrange for the distribution of copies.

Date______________________

The following changes are to be made in job assignments or other field experiences:

K-10

FORM II

JOB PERFORMANCE EVALUATION

Instructions for use of Form II

This form is to be completed by the agency supervisor for each job listed in Form I.
This form should be filled out in preparation for each evaluation conference. Before the conference, copies should be sent to:
--the departmental college advisor, for the student's cumulative folder.
--the agency supervisor, who should retain one copy.
--the college instructor/supervisor.
--the instructors of other D,D&E courses in which the student is currently enrolled.
--the student.

Date of Evaluation:______________________

Job #_____(as listed in Section 5 and 6 of Form I).

Evaluation performed by ____.
agency supervisor

Job Performance

1) Describe briefly what the trainee did in carrying out this job:

a. Planning--

b. Information collection--

c. Research--

d. Product Design--

e. Writing--

f. Field Testing--

g. Evaluation--

h. Observing--

i. Interviewing--

j. Organizing data--

k. Using bibliographical resources--

l. Other--

2) Evaluate performance in each of the above procedures as well as the final outcome:

a.

b.

c.

d.

e.

f.

g.

h.

i.

j.

k.

l.

3) Apparent Learning outcomes for student:

Skills:

Knowledge:

Values and attitudes:

4. What are your suggestions to the instructor/supervisor for:

   a. Course modification--

   b. Amendment to the original Job Assignments and Field Experiences (Form I, Section 6)--

FORM III

STUDENT'S LOG -- FIELD EXPERIENCES

Instructions for use of Form III

1) This log is to be kept by the student, who should make his entries at the conclusion of each day's field experience. Entries should be made for ***each*** *job listed in Form I.*
2) Copies are to be distributed by the student prior to each evaluation conference to:
--the agency supervisor.
--the college instructor/supervisor.
--the college departmental advisor, to be placed in the student's cumulative file.
--the instructors of other D,D&E courses in which the student is currently enrolled.

Entries in this log cover the period from
____________________ to ____________________.

Student's name____

Internship Agency____

Agency Supervisor____

College Instructor/Supervisor_____________________________________

1. Fill out the following for each job listed in Sections 5 & 6 of Form I:

Date	*Job #*	*Activity*	*Time spent (in hours)*

2. Describe briefly what you have learned and/or what skills you have developed as a result of the activities you have listed:

3. What are some of the difficulties you have encountered?

4. Do you have any suggestions as to changes which should be made in your internship?

5. In the light of your internship experiences, can you suggest any modifications which should be made in the D,D&E courses?

APPENDIX L[1]

A PROGRAM TO PREPARE UNEMPLOYED AEROSPACE WORKERS FOR JOBS IN EDUCATIONAL RESEARCH AND DEVELOPMENT--QUESTIONS AND ANSWERS FOR APPLICANTS

American Institutes for Research, Palo Alto, California

WHAT IS THE PURPOSE OF THIS PROGRAM?

There are many male and female unemployed aerospace workers whose skills and talents are being lost by society. One solution to this problem is to redeploy these skills from problem solving in the physical sciences to problem solving in the social sciences. This program is designed to help aerospace workers transfer their scientific research and development skills to the field of education through a short-term apprenticeship work-study program. At the present time, the program is viewed as a pilot study of the feasibility of this approach. Only a small number of trainees will be selected.[2] If the pilot study is successful, plans for an expanded program will be considered.

WHO ARE THE SPONSORS OF THE PROGRAM?

The design of the program and responsibility for its administration lie with the American Institutes for Research in its Palo Alto, California office. AIR is a private non-profit educational and scientific research institution engaged in research and service in the behavioral, social, and educational science areas. Over the years, AIR has completed more than 800 projects in education and the behavioral sciences. The 450 persons employed by AIR in its 5 locations include researchers, technical staff, administrative and clerical personnel, and other support staff. Approximately 100 of the employees are senior scientists who hold doctoral degrees in education, sociology, statistics, engineering, and other areas of the physical and social sciences.

Financial support is provided through a grant from the Division of Research and Development Resources, National Center for Educational Research and Development, United States Office of Education.

WHERE WILL I BE TRAINED?

Most of the training experiences will take place at AIR in Palo Alto, where office space, instructional materials, and staff will be located. Field trips and some experiences at other educational research and development institutions are scheduled.

WHEN DOES THIS PROGRAM START AND HOW LONG DOES IT LAST?

Trainees will begin the apprenticeship work-study program on Wednesday, September 15, 1971. The program will run 13 weeks, terminating on Wednesday, December 15, 1971. The normal work day is from 8:30 to 5:00 p.m. Trainees may also expect to spend some after-time hours in directed study, personal research projects, and the like.

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[1] AIR is a member agency of the Far West Consortium for D,D&E. It uses Consortium training materials for this in-service program.

[2] Six trainees were selected from among 175 applicants.

WHAT WILL THE TRAINING INVOLVE?

Instructional experiences will include seminars, directed independent studies, and specific project apprenticeships. Morning sessions will be devoted to formal seminars and independent study. Afternoons will be devoted to apprenticeship work. Instruction will be handled by various AIR staff members and will be tailored to the particular needs of the individual trainees. Visiting speakers will also be invited to participate in the seminars.

The following general subject areas will be covered:

1) Orientation to Education and Educational Problems. This area is designed to introduce the trainee to the basic educational setting. Trainees will talk with teachers and administrators, view videotapes of schools in action, and make field trips to schools. They will become familiar with the structure and administration of public schools and the legal, social and political constraints within which they operate. Educational problems including learning and classroom management will be covered.

2) Introduction to Educational Research and Development. This will be an overview of the major topics, efforts, and activities in educational research and development. The content will include such topics as learning theory, evaluation, educational technology, behavioral research methods and instrumentation, and basic terminology. Field trips to other educational research and development institutions will be included.

3) Comparative Task and Skill Transfer Analysis. The objective of this topic area is to compare and contrast the tasks and requisite skills of research and development in the behavioral sciences and particularly education. Areas of comparison might include settings, problem areas, organization and administration, and approach to problem solving. A good deal of this content depends heavily on the trainees themselves. The comparison will serve to highlight those areas in educational research in which they are already competent and to point out task and skill areas in which trainees need more familiarization or study. These identifications will be particularly valuable in defining individual objectives for each person in the training program.

4) Requisite Skills Development. This area will be treated through formal sub-group seminars whenever trainee needs coincide. Typically, however, directed independent studies will be more appropriate. Special problems or topics will be trainee electives. Decisions will be based on their existing skills, the conclusions of the formal sessions on comparative task analysis, and the nature of their project apprenticeship and interests. The number of individually treated topics will depend on all of these factors, plus the intensity with which a trainee wishes to pursue a topic. While the total pool of topics will evolve and finalize as the work-study program progresses into its third

and fourth weeks, the pool would probably include: a) systems analysis, planning and control techniques (e.g., PERT, PPBS); b) data processing; c) educational statistics and data analysis; d) data collection, organization, and presentation; e) instrument development, questionnaire design, standardized testing; f) material production and distribution; g) field testing; h) sampling; i) research report writing; j) scaling; and k) educational information retrieval (e.g., ERIC system).

5) Job Prospects and Career Development Strategies. This area will include a summary of employment opportunities. The various settings in which educational R & D takes place will be analyzed. Long range career plans will be discussed. Proposal writing and project funding will also be covered.

A number of sessions of formal instruction toward the end of the three month program will be devoted to the format, art, and technique of proposal writing. Trainees will examine and discuss a variety of proposal types and topics. During this time each trainee will actually write proposals.

Discussions in the area of project funding will include: 1) a survey of educational R & D sponsors, 2) the system of contacts and contracts, and 3) project type or topic and logical funding sources.

Topics 1, 2, 3, and 5 will be covered in formal seminars. Topic 4 will be covered primarily in the directed independent study. Although instruction will be largely sequential, frequent overlap and review will occur. Learning in all five areas will be reinforced in the project apprenticeship. During the apprenticeship, trainees initially will survey a large number of ongoing projects; they will receive specially prescribed project experience, and then engage in project work based on their own interests.

WHAT KIND OF BACKGROUND MUST I HAVE TO BE ELIGIBLE?

To apply for the training program, an applicant must be an unemployed aerospace worker who holds a B.S. or B.A. degree. For survey purposes the application form will include questions on routine demographic data on such factors as age, sex, and marital status. In no way whatsoever, will this information be used to influence eligibility or selection. Individuals of all ages, sex, and ethnic backgrounds are encouraged to apply.

HOW WILL TRAINEE SELECTION BE MADE?

Selection will be based on a written application, a test of general knowledge of selected topics in education, academic ability, and work history and experience. Relevant experiences which indicate interest in the field of education and the possibility of interest in a long range career commitment are desirable.

WILL I BE PAID DURING TRAINING?

Trainees will receive a stipend of $75 per week for the 13 weeks of the program. In addition, support for dependents will be provided at the rate of $15 per week per dependent for 13 weeks. For trainees from out of state, transportation costs equivalent to one round trip air fare per trainee will be provided.

DO I PAY INCOME TAX ON MY STIPEND?

No.

WHAT KINDS OF ACTIVITIES ARE INVOLVED IN EDUCATIONAL RESEARCH AND DEVELOPMENT?

Educational R & D occurs in a variety of institutions including federally sponsored centers and laboratories, profit and non-profit research organizations, private corporations, school systems, federal and state departments of education, and publishing companies. There are a broad range of activities. Examples include developing new learning materials, evaluating the effectiveness of educational projects and products, performing background research on programs such as Sesame Street, designing scheduling systems for big city schools, and assisting educational administrators in making systematic decisions.

WILL I BE GUARANTEED A JOB?

No. Job placement is not guaranteed. However, a recent manpower needs study in the Bay Area has suggested the need for educational research and development workers. AIR will make preliminary contact with potential employers, assist trainees in making personal contacts and job inquiries, and assist in interview arrangements.

In addition, contact will be maintained with California's Human Resources Development Agency, the Department of Labor's Manpower Administration, and other agencies active in implementing the administration's new aid program for the unemployed. Under this program, funds are made available to assist the jobless in investigating job possibilities away from home, cover moving costs necessitated by job changes, and underwrite on-the-job training.

WHAT KIND OF JOB RESPONSIBILITIES AND SALARY CAN I EXPECT IF I AM SUCCESSFUL IN FUTURE JOB PLACEMENT?

Trainees who successfully locate jobs in educational R & D cannot expect to enter the field at the same high levels of responsibility or salary which were probably typical of their employment in the aerospace industry. Entry level salaries of R & D personnel with a B.S. or B.A. and some experience might be as low as $8,000 to $12,000. Additional degrees, specific technical skills, such as data processing skills and/or a base of related experience could raise these figures by as much as $4,000.

The entry level professional is likely to have some opportunity of responsibility for his own work, but is unlikely to be autonomous in final decision-making. The field has significant advancement opportunity potential and on-the-job development opportunity. As in any industry, experience and demonstrated competency are reflected in increased staff and decision-making responsibilities.

WHERE ARE EDUCATIONAL R & D JOBS LOCATED?

Jobs are likely to be located in or near large urban areas which are major commercial and educational centers for their region of the country.

WHAT ARRANGEMENTS WILL BE MADE FOR LIVING ACCOMMODATIONS DURING TRAINING?

Arrangements for special motel rates will be made by AIR for those trainees so desiring. Rates can be obtained for approximately $5 per day per person with double occupancy. Others may wish to rent a room, apartment or house, or defray living expenses by sharing facilities with other trainees. Furnished studio apartments in the area start at approximately $125 per month; furnished one bedroom apartments start at approximately $145, while furnished two bedroom apartments and modest houses are unlikely to start at less than $180 per month. The costs of these arrangements will be the trainee's responsibility.

WILL I NEED A CAR?

Some personal transportation will be essential. AIR is located in the foothills overlooking Stanford University and is not near public transportation. A car pool with other trainees might be considered, but the trainee might wish more independence in his mobility. All transportation expenses while in the area are borne by the trainee.

WHAT PROVISION WILL BE MADE FOR MY HOUSEHOLD AND FAMILY?

No specific benefits for the households and families of trainees other than the $15 per week per dependent allowance are available.

August 10, 1971

- Directors Judith Melnotte
and Eugene Millstein

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and Eugene Millstein

APPENDIX M

VITAE OF INSTRUCTORS IN ENTRY-PROFESSIONAL PROGRAM[1]

HAL JONSSON

Professor of Interdisciplinary Studies in Education
San Francisco State College

EDUCATION

B. A.	University of California, Berkeley	1950, Highest Honors
M. A.	University of California, Berkeley	1958
Ph.D.	University of California, Berkeley	1964

PROFESSIONAL EXPERIENCE

Elementary and Jr. High School Teacher, West Oakland, 1954-57.

Supervisor of Elementary Education and Assistant to Director of Demonstration Schools, U.C. at Berkeley, 1957-58.

College Teaching, San Francisco State College, 1958 to present, U.C. Berkeley, 1961-62.

Director of Teacher Corps projects from February 1969 to 1971.

Coordinator for Frederick Burk Elementary School-College observation-demonstration program, 1960-62.

Consultant Work: Evaluation Consultant, Office of Compensatory Education, California State Dept. of Education, 1965-66; Evaluation Consultant, Teacher Corps, Washington Office, U.S.O.E., 1968; Evaluation Consultant, ESEA Title III Project, Pittsburg, California, 1967-68, and Title I Project, Berkeley, California, 1965-68; Research and Evaluation Consultant, STEP, 1966-68.

PROFESSIONAL ORGANIZATIONS AND HONORS

AERA, NCME, CTA (CCUFA), ACSCP, AFT, Phi Beta Kappa; Committee Representative to Planning Committee, AERA panel, Sacramento, 1967.

PUBLICATIONS

"Interaction of Test Anxiety and Item Difficulty in Mathematics Problem Solving Performance," National Council on Measurement in Education Journal, (in press)

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[1] SFSC classes only. The AIR retraining program for Aerospace workers consists of inservice training, and seminars in a variety of disciplines and skills, but no formal courses.

C. EARL MILLER, JR.

Professor of Educational Administration
San Francisco State College

EDUCATION

B.A. University of Idaho 1948

M.A. Washington State University 1954

Ed. D. University of California at Berkeley 1960

PROFESSIONAL EXPERIENCE

High school teacher and administrator in Central Idaho, 1948-56.

Part time graduate student at UCB and high school teacher at Piedmont High School, California. Active in local CTA-affiliated teachers organization, 1956-68

Full time student and graduate assistant at UCB. Participated in a number of projects sponsored by the Field Service Center, 1958-60

Employment in the Department of Educational Administration, San Francisco State College and part time consultant for the Solano County Superintendent of Schools, Fairfield, California (7 years); Reed Union School District, Tiburon, California (3 years); The Coordinating Council for Higher Education (1/2 year) and the San Francisco Chamber of Commerce (several meetings), 1960 to present.

PUBLICATIONS

Numerous mimeographed reports while at UC. Extensive report writing at the Solano County Office of Education.

Golfo, Armand J. and Miller, Earl Interpreting Education Research. William C. Brown Publishers. 1965 with second edition entitled Interpreting Educational Research, 1970.

LIONEL R. OLSEN

Professor of Educational Administration
San Francisco State College

EDUCATION

B. A.	University of the Pacific,	1946
M. A.	Stanford University,	1947
Ed.D	Stanford University,	1956

PROFESSIONAL EXPERIENCE

Teacher and counselor in secondary schools

Teacher in elementary schools

Teacher and counselor in junior college

Dean of Student Personnel in junior college

County schools of secondary education, child welfare and attendance, and Director of Guidance

Assistant Superintendent of schools for curriculum development and special services in city school district

College teaching: Long Beach State College San Francisco State College
Stanford University

Consultant to:

Western Association of Schools and Colleges accreditation teams (high school accreditation)

State Department of Education, Bureau of Compensatory Education

New Haven Unified and Desert Sands School Districts (in conducting surveys of the instructional programs)

California Teachers Association Professional Standards Commission

LIFE CREDENTIALS

General Elementary; General Secondary; General Pupil Personnel Services; General Administration (California)

M-4

ENOCH I. SAWIN

Professor of Education
San Francisco State College

EDUCATION

B. S.	University of Chicago, Mathematics	1947
M. A.	University of Chicago, Education	1948
Ph.D.	University of Chicago, Education	1951
Post-doctoral	Stanford University	1967-68

PROFESSIONAL EXPERIENCE

Faculty, Syracuse University, 1950-1952
Professor (GS - 13), Air University, Maxwell Field, Alabama, 1952-1960
Professor, San Francisco State College, 1960-present.
Educational research, curriculum development and evaluation, developing new training programs; training others in educational research

PROFESSIONAL ASSOCIATIONS AND HONORS

American Educational Research Association; California Educational Research Association; American Psychological Association; Association of Supervisors of Curriculum Development; National Council for Measurement in Education.

PUBLICATIONS

On writing team (Ch. 7 and 8) for 1958 A.S.C.D. Yearbook, *A Look at Continuity in the School Program*; "Broadening the Base in Evaluation," in *School Review*, Spring 1959; "A Proposed Model in Evaluation" (with Hilda Taba) in *Educational Leadership*, October 1962; "The Air Force ROTC Curriculum Evaluation Project (with J. F. Smith), in *Improving College and University Teaching*, Spring 1966, pp. 81-86; member of committee that prepared *Taxonomy of Educational Objectives*, D. R. Krathwohl, *et*. *al*.; *Evaluation and the Work of the Teacher*, Wadsworth, 1969.

JOHN D. DeCECCO

Professor of Psychology and Education
San Francisco State College

EDUCATION

B. S.	Allegheny College	1946
M. A.	University of Pennsylvania	1949
Ph.D.	University of Pennsylvania	1953

Post-doctoral study at Wayne State University, 1953-55, Michigan State University, 1955-60, and University of Maine, 1956-57(summers).

PROFESSIONAL EXPERIENCE

Teaching Positions:

Erie Public High Schools, Erie, Pa. 1946-48.
University of Detroit, 1953-55.
Michigan State University, 1955-60.
University of British Columbia, Summer, 1963.
Columbia University, 1968-70.
New York University, Spring, 1970.
Unim Graduate School (for experimenting colleges and universities), 1971-.

Consultant Positions:

California State Dept. of Education on Programmed Instruction, 1961-63.
Hillsborough School District, 1962-63
San Francisco Unified School District, 1963-66
Educational Testing Service Development of Field Test in Education, 1969-70
Center for Urban Education, New York, 1970
Editorial Consultant, CRM Books (Psychology Today), 1968-
Editorial Consultant to American Educational Research Journal, 1967-73

PROFESSIONAL ORGANIZATIONS

AERA: Divisions B, C, and D; APA: Divisions 2, 15, and 26; CERA; NCEM; AAUP; and Phi Delta Kappa.

PUBLICATIONS

Nine books in the fields of Education and Psychology and numerous articles in professional journals.

APPENDIX N

PARTICIPANTS IN THE ENTRY-PROFESSIONAL (M.A.) PROGRAM IN D,D&E
Fall 1971

San Francisco State College

Nancy - Age 27, White

Nancy attended Mount Holyoke College where she received a B.A. degree in Political Science. She worked for USOE for two years as an Education Program Specialist and has been with the Far West Laboratory for the past three and a half years. At the Lab, as a Program Assistant, Nancy has been involved with the development of information units and has been training in information dissemination. She is interested in expanding this training through the D,D&E program and in learning more about the development of systems.

Carol - Age 24, White

Carol received her B.A. degree in the History of Art from the University of Chicago. She taught for a year at Walden School in Berkeley and has done some substitute teaching in the Albany (California) public schools. Carol came to the Far West Laboratory two years ago and has been employed there as a Research Intern. Her work involved research and writing about educational developments. Carol is interested in working as a curriculum consultant to schools and envisions starting a school some day.

Margot - Age 39, White

Margot received her B.A. in French and Art from Stanford University. She has been extensively trained in metalsmithing, dance, and teaching and has worked professionally in all of those fields. Margot's metalwork and jewelry has been exhibited often in Marin County shows. She has taught Art and Spanish to children and has been the Director of the Kindergarten Program at the Marin Country Day School. Margot has been with the Far West Laboratory since 1970 as a Program Assistant. At the Lab she has been the Director of the Language Development Program of Follow-Through, has developed materials for Kindergarten through Third Grade, has done classroom demonstrations of video-tapes, and has authored "Language Experience", Volumes I and II. Margot is interested in using her D,D&E training to develop an "integrated" curriculum for use in public schools. She hopes to become a consultant and possibly a teacher of various age levels, including adults as well as children.

Nancy - Age 28, White

Nancy attended Occidental College where she received her B.A. degree in Latin American Affairs. She later studied the twentieth century Bolivian novel with the aid of a Fulbright Grant to La Paz, Bolivia. She was a Research Assistant and Writer with the Educational Research Council of America in Cleveland from 1965 to 1968. In 1969 Nancy worked in Menlo Park, California with Educational Consulting Associates as a Consultant. She later did consulting work for Lockheed Education Systems in Sunnyvale. Nancy has been with the Far West Lab since 1970 as a Program Assistant in the Communication Program. In that capacity she has designed and developed IPMS training units. Nancy is interested in expanding her knowledge of educational development work through the D,D&E program.

Celia - Age 22, White

Celia received her B.A. from the University of California at Berkeley in Sociology. She minored in English and Spanish. Celia has been with the Far West Laboratory for the past eight months as a clerk-typist. She is interested in expanding her knowledge and bettering her career opportunities in various areas of educational research through her involvement in the D,D&E program.

Kathleen - Age 42, White

Kathleen majored in Journalism at the University of Minnesota where she earned her B.A. She was the News Director for the United Bay Area Crusade for four years, a position which was primarily involved with public relations. Kathleen later worked as a Public Information Director at Sonoma State College. She was a writer and Program Director for five years for the University of California's Extension. She has been at the Far West Laboratory for the last six months as an editor and writer involved with curriculum analysis and interpretation. Kathleen wants to do educational writing and expects to expand her knowledge and skills in the field through participation in the D,D&E program.

Doris - Age 27, Black

Doris received her Bachelor of Science degree from California State College at Hayward and her elementary teaching credential from the University of California. She taught fifth and sixth grades for one year at Longfellow School. Doris is interested in continuing her work in the public schools and wants to prepare herself for positions of leadership through her involvement in the D,D&E program.

Patricia - Age 37, White

Patricia received her A.B. degree in English from the University of South Carolina. She taught grades three, five, and six for four years. She worked for more than two years with the Education Division of Xerox where she was a training specialist. Patricia has been with the Far West Laboratory for the past two years as a Program Assistant, a position which entails research, writing, and editing of education products. She is interested in expanding her knowledge and skills in the D,D&E program so that she can research and develop innovative educational products.

Gail - Age 25, White

Gail majored in Sociology at Ohio Wesleyan University where she received her B.A. degree. She did research for CBS for three years before coming to the Far West Laboratory where she has been employed for the past four months as Research Intern. Gail wants training in D,D&E in order to improve her job performance at the Lab.

Marie - Age 32, White

Marie received her B.A. in Speech and Drama from the College of St. Catherine. She worked for five months with Materials for Today's Learning as a secretary. Marie taught Speech, Drama, English, and Forensics for three years at St. Michael High School. She has been involved in directing a Montessori program in St. Paul. Marie is interested in developing programs and materials for pre-school children.

Lorraine - Age 24, Black

Lorraine received her B.A. in economics from Southern University in Baton Rouge. She substitute taught at the elementary and secondary levels for four months in the Louisiana public schools. Lorraine has been doing secretarial work for the past two and-a-half years at the Educational Testing Service in Berkeley, California. She wishes to pursue a career in Development.

Meredith - Age 28, Black

Meredith attended the University of Arizona and received a B.A. from there in 1964 in Elementary Education. She taught second and fourth grades for five years in Orange County (California) and has been at the Far West Laboratory for one year as Research Intern in the department of Teacher Education. Meredith would like to develop competencies in D,D&E to aid her in her work at the Lab and to help prepare her for future work in the public schools.

Lillian - Age 35, Black

Lillian received her B.A. in Social Work from the University of California. She worked for the Children's Home Society in Oakland for four and-a-half years before coming to the Far West Laboratory. At the Lab Lillian first worked for the Personnel Department and then became Administrative Assistant to the Utilization Division. She hopes to utilize her D,D&E skills in agencies like the Far West Laboratory.

Barbara - Age 41, White

Barbara attended the University of Oregon where she received her B.A. degree in Journalism. She has been with the American Institutes for Research for the past five years researching and developing training materials. Barbara expects to improve her job efficiency through development of D,D&E skills.

Vicki - Age 23, White

Vicki received her B.A. in Political Science from the University of California at Berkeley. She worked for four months as Personnel Assistant in the Personnel Department of the same school. Vicki has been at the Far West Laboratory for over two years in the capacity of Research Intern. Her duties entail research and writing about recent innovations in education. Vicki would like to continue and expand her work in R&D and perhaps become a curriculum planner. She is also interested in alternative methods of educating children.

Darrah - Age 23, White

Darrah attended Sonoma (California) State College and received her B.A. from them in Sociology. She has worked for two summers as a counselor at a children's camp in San Rafael. Darrah is presently working with the Consortium at the Far West Laboratory as a Research Intern. She is interested in teaching sociology at the college level and developing materials for sociological studies.

Carolyn - Age 25, White

Carolyn received her B.A. in anthropology from Stanford University. She worked as a Research Assistant at Stanford Research Institute for five months and then joined the American Institutes for Research, also as a Research Assistant. She has been with them for the past eight months. Carolyn is interested in using her D,D&E skills to do work in educational research and development.

Cynthia - Age 23, Black

Cynthia received her B.A. in Psychology from the College of the Holy Names and her Elementary and Secondary Teaching Credential from the University of California. She worked for seven years at the Berkeley Recreation Department as Playground Leader and for one year as a sixth grade teacher at the Longfellow Elementary School. She is interested in studying Educational Administration through the D,D&E program.

Marica - Age 28, White

Marcia attended Carleton College where she received a B.A. degree in Sociology. Since then she has earned some additional graduate credits in Psychology at Harvard University. Marcia worked for one year as a research secretary for the city of Boston, for six months as a Research Assistant in the Upward Bound program at Harvard, and as a substitute teacher for one year in the Boston public schools. She has been at the Far West Laboratory for almost two years as Proofreader and Copyeditor. Marcia is interested in organization and curriculum as it is applied in the development of alternative schools.

Sheila - Age 29, Black

Sheila received her B.A. in Early Childhood Education from the University of North Carolina. She taught for a total of seven years in North Carolina and in Richmond, California before coming to the Far West Laboratory. At the Lab Sheila has been a Research Intern for the past year-and-a-half and has been primarily involved with curriculum analysis. She is interested in pursuing a career in the public schools in a leadership position and hopes that the D,D&E program will aid her in this area.

Timiza - Age 25, Black

Timiza received her AA in Social Science from Merritt College and her B.S. from California State College at Hayward. This past summer she completed the requirements for her Elementary Teaching Credential at the University of California at Berkeley. Timiza taught second and third grades for one year and preschool through Project Headstart for another year. She is interested in starting a private school for non-white children and hopes that her studies in D,D&E will aid her in this endeavor.

L.E. - Age 24, Black

L.E. received a B.A. degree in Psychology from Sonoma State College. He worked at Sonoma State for two-and-a-half years as Audio-Visual Supervisor. L.E. has been with the Far West Laboratory for the past year and-a-half as Research Intern in the Multi-Ethnic Program. He is interested in developing D,D&E skills to help him devise relevant materials for use with non-white children in community schools.

Linda - Age 26, White

Linda attended Pomona College where she received her B.A. in Psychology. She worked for a year at Pacific State Hospital as Research Assistant doing literature search and data analysis. She later spent a year as Management Analyst in the Planning Department of the Naval Supply Center. Linda has been with the Far West Laboratory for the past two and-a-half years as Program Assistant. Her duties in this position include product design, writing, field testing and data collection. Linda is interested in continuing her work with R&D at the Lab or at similar agencies and anticipates future involvement with R&D dissemination positions in public school systems. She hopes that D,D&E training will help prepare her for these positions.

Kashan - Age 24, Black

Kashan received her B.A. in Social Science and her Elementary Teaching Credential from San Francisco State College in 1971. She has been with the Far West Laboratory for the past few months as Research Intern doing evaluation of Lab products. Kashan is interested in going into the Development area of Education.

AEROSPACE PROGRAM - AMERICAN INSTITUTES FOR RESEARCH

William - Age 51, White

Bill has a B.S. from Iowa State University in Chemical Engineering. He worked for the Monsanto Company from 1942 to 1954 as supervisor and then coordinator of management development at their plants in Massachusetts and Missouri. He was training director for White-Rogers Company in St. Louis from 1954 to 1957. From 1957 to 1963, Bill was employed by Boeing in a developmental capacity and he worked on development of a management system for advanced Minuteman contract. From 1963 to 1964, Bill worked on the planning and control section of the proposal for the Lunar Orbiter contract. He worked for Boeing until 1971 preparing major technical presentations, proposals, reports, and developing and documenting improvements in administrative systems and data preparation techniques. In 1971, Bill utilized a training grant awarded by the American Institutes for Research to extend research and development skills in the area of behavioral research and development. He is interested in taking responsibility for increasing the effectiveness of individuals and organizations by developing education and training programs, improved administrative systems, and effective media for communicating responsibilities and procedures.

John - White

John received his B.A. in Psychology from California State College at Hayward and his M.S. in Psychology from the University of Nebraska. John was Senior Specification Engineer for Lockheed from 1960 to 1968, a position which involved his participation as a team member in dozens of developmental projects for aerospace electronic equipment. From 1969 to 1970, he was Senior Technical Editor for Barry Research Corporation. In that capacity, John supervised and edited the production of all technical documents produced by the company. He was research assistant at the Nebraska Psychiatric Institute in Omaha from 1970 to 1971. In 1971, John came to the American Institutes for Research where he utilized a training grant to enhance professional growth, develop new skills, and focus current skills upon educational research.

Bonita - Age 41, White

Bonita received her B.S. in Physics and Mathematics from Seattle Pacific College in 1951 and her Secondary Teaching Certificate in Mathematics and Physics from the University of Washington in 1965. She was Flight Test Analyst for Boeing in Seattle from 1951 to 1956. She stayed at Boeing until 1970 as Associate Engineer on the Product Development Staff and as Reliability Engineer on the Reliability, Systems Safety and Value Engineering Staff. In 1971, Bonita worked for the University of Washington in the Department of Oceanography involved with an Oceanographic Study Tour. Later in that year, she came to the American Institutes for Research as the recipient of a federal grant to investigate and evaluate adaption of physical science and engineering skills and techniques to educational and behavioral sciences research and development.

Nicholas - Age 28, White

Nicholas received his B.S. degree from the University of Notre Dame and his M.S. from the University of Florida. While in graduate school, he did basic research in solid mechanics and optical techniques in stress analysis. In 1967, he came to the Chemical Bank in New York as Operations Research Analyst and studied and documented data flows in all areas of a large band. He was a member of the technical staff at RCA Institutes, Inc. in New Jersey from 1969 to 1970 where he developed and taught courses for engineers and physicists in digital communications, optical systems engineering and logic design. In 1971, Nicholas received a training grant to extend skills in research and development at the American Institutes for Research.

Neil - Age 49, White

Neil received his B.S. in Mechanical Engineering from the University of Washington and his Bachelor of Business Administration from the University of Minnesota. From 1950 to 1970, he worked for Boeing in Seattle as Tool Designer, Test Engineer, Design Engineer, Liaison Engineer, and Lead Engineer. His last position at Boeing involved preflight and delivery of the 747 airplane.

Ausloos - Age 36, White

Ausloos received his M.B.A. in Operations Research from the University of Santa Clara in 1967 and his B.S. in Engineering from Michigan Technological University in 1957. He has developed and taught Environmental Education programs for elementary and intermedi te schools, developed and written proposals in comprehensive community education for submittal to the U.S. Office of Education, served as Project Director for Environmental Education programs funded by a private foundation, developed and documented educational air pollution investigations oriented to pollution problems in the local community, developed and programmed mathematical exercises using Computer Assisted Instruction for the fifth grade, and developed an educational program designed to use computers as a problem solving tool in Environmental Education. Ausloos spent more than five years with industry formulating mathematical models designed to allocate resources in a cost-effective manner and more than five years as a programmer in four computer languages. He completed the AIR orientation project designed to orient engineer and other professionals from the aerospace industry for positions in educational research.

APPENDIX O

INTERNAL PROGRESS REPORT, August, 1971

Detailed System Design

Work on the detailed design of the Consortium model is progressing satisfactorily. The system and the model have been elaborated in more detail than specified in the Consortium Report. These systems will be elaborated and refined as Consortium operations progress.

System Evaluation

Dr. Maurice Eash, a consultant on evaluation, discussed the evaluation of Consortium activities with Dr. Ward and Dr. Bud Warren of ETS. His report has been submitted to Dr. Banathy.

Planning and Programming

Planning and Programming of Consortium activities is essentially complete. There are still a few odds and ends such as preliminary work on courses for the Spring, 1972, semester; schedules for internship discussions; staff training schedules; completion of Planning and Design course. Consortium management is aware of these things and is taking steps to insure that they will be handled.

Management

Consortium management is presently spread much too thinly since it rests in the hands of only one person. The addition of a full-time senior staff member should alleviate this situation and facilitate Consortium operations.

Evaluation

Meetings have been scheduled with Drs. Bud Warren and John Helmick of ETS to discuss the progress of the Evaluation system with Drs. Ward and Hood. These meetings will review progress to date, problems encountered and anticipated, and completion schedules. Preliminary Evaluation system is being revised.

Communication

The following coordination meetings were held with regard to Consortium activities:

July 1, ETS - Evaluation System

July 1, Pat Pallister (SMCC) - Student Recruitment

July 2,	CEP - Student Training Program
July 6-7,	Marjorie Kelley - Review of Planning and Design Materials
July 13,	Hal Jonsson - Evaluation Course teaching and development
July 19,	Antioch College personnel - Participation in Consortium Program
July 20,	Hal Jonsson and E.I.Sawin - Evaluation Course teaching and development
July 20,	George Hallowitz - Student Recruitment
July 21,	Marjorie Kelley - Planning and Design materials review
July 22,	George Hallowitz - Student Recruitment
July 22,	Jonsson - Evaluation Course
July 23,	Reed, UC Center for R&D in Higher Ed. (UC/CHE) - Draft design proposal for Ph.D. program
July 27,	AIR - Review of I/D module
July 27,	Cañada College - Review of Communication Skills Course
July 27,	Mel Pratt (Cañada College) - Implementation of Consortium courses
July 28,	Maurice Eash - Evaluation of Consortium activities
July 28,	Hallowitz and Kilpack - Coordination of Engineered Internship plans and Staff Training
July 29,	Reed (UC/CHE) - Discussion of Proposal for Ph.D. program in D,D&E
July 30,	Eash - Evaluation of Consortium activities
Aug. 5,	Cañada College - Review of Communication Skills Course materials
Aug. 6,	Warren (ETS) - Evaluation System
Aug. 10,	Cañada College - Review and Comment on Communication Skills materials; coordination of Recruitment Activities
Aug. 11,	UC/CHE - Review and revision of Ph.D. proposal
Aug. 16,	Contra Costa College - Implementation of Consortium courses
Aug. 17,	Contra Costa College - Implementation of Consortium courses
Aug. 18,	Ken Kennedy - Prototype testing of Communication Skills and Planning and Design modules at the PP level.

Aug. 18	ETS - Discussion of Communications Skills Course Evaluation and Engineered Internships with Ward, Kennedy & Kilpack.
Aug. 20	Kennedy - Set up Prototype Testing of Planning and Design and Communication Skills Course Modules. Testing to Begin on Aug. 23, 1971.
Aug. 20	Kelley - Information briefing of Freeman Elzey on Work and Planning that has been accomplished on Planning and Design Course.

Training System Planning and Programming

Planning for the development of the following courses for presentation during the Spring Semester, 1972, has progressed satisfactorily. Dr. Hal Jonsson has been chosen as the person who will teach the Evaluation course (EP) and will consult on its development. The Instructor for the course on Developmental Engineering (EP) has not yet been identified, but Dr. Hallowitz is aware of and working on this problem. The person selected to teach and to translate the Communication Skills course to the EP level was chosen and a contract negotiated, but unfortunately she has been confined to bed by doctor's orders and will be unable to work with us. Dr. Hallowitz is actively seeking a suitable replacement.

Analysis Course-EP

Developmental work not scheduled this year.

Planning and Design Course, EP & PP

Module 2 of this course has been completed and is being prototype tested on the paraprofessional level. Module 1 (EP) is now being reviewed in draft form and Module 3 is in progress. Dr. Marjorie Kelley will be unable to continue work on this course due to other commitments and Dr. Freeman Elzey has been chosen to complete the remaining modules, assisted by Miss Audrey Putnam.

Developmental Engineering Course, EP & PP

Development work on this course has not yet begun. Dr. Hallowitz is identifying an instructor at SFSC, and Dr. Bennett is doing the same at Cañada College.

Evaluation Course, EP & PP

Development work on this course has not yet begun. Dr. Hal Jonsson has been identified as the person who will teach this course at SFSC and will consult on its development. An instructor for this course at Cañada College has not yet been identified.

Dissemination & Marketing course, EP

No work on this has been accomplished. $2,500 in development funds are alloted to initiate development of this course. I feel that these monies could be more effectively used in developing the Developmental Engineering or Evaluation Courses for presentation in Spring, 1972.

Information/Data Collection & Organization, EP & PP

Final revisions have been made in Modules 1, 3 and 4 (EP). Module 1 (PP) was drafted and final revisions have been made in the videotape to be used with module 1 (EP & PP). The draft of Module 5 (EP) is now being reviewed. Future efforts will be concerned with additional field testing of the modules and with coordinating the internship positions. Specifically, the possibility of field testing the modules with unemployed aerospace engineers currently being cross-trained for educational R&D at AIR is being explored. A final coordination meeting will be held early in September.

Communications Skills, EP & PP

Modules 1, 3, and 4 (PP) are in progress and Module 2 has been prototype tested with CEP students at Far West Lab. Work on the EP level of this course is scheduled to begin this fall.

Management Course, EP Not funded.

Engineered Internship Development

Internship programs from SFSC and SMCC have been received, reviewed, and are presently being revised, Coordination of evaluation forms has been effected with ETS. Projection: Completed.

Paraprofessional Program Planning

Papers describing the implementation of Consortium programs at SFSC and SMCC have been received. Dr. Bennett (SMCC) is investigating the problems involved in providing instructors and course credit for Consortium Continuing Education courses taught at the Laboratory. Mr. Lee Mahood, Cañada College, indicated that it would be impossible for his college to teach these courses under the State Education code. He recommended that we contact Mr. Lloyd Baesdorfer, Peralta College District, to handle Continuing Education courses for the Laboratory. Negotiations with Merritt College are presently underway.

Mr. John Wixson of Contra Costa College is implementing Consortium courses at the Paraprofessional level for the Fall 1971 semester. Meetings were held on Aug. 16 and 17 to arrange for this. These courses will be presented to CEP (Concentrated Employment Program) personnel on Laboratory premises.

Drs. Hallowitz and Bennett are exploring the costs of establishing learning laboratories at their respective colleges. The possibility of establishing laboratories results from non-expenditure of student funds this year.

Preliminary plans and arrangements are being made for the approval and scheduling of courses for the Spring Semester, 1972. We have received word that information on Consortium course requirements for that semester should be submitted to the SFSC Business Office by December 15, 1971. This will not require us to commit funds out of this year's contract to assure continuity of Consortium operations at SFSC. Dr. Hallowitz and Dr. Bennett are exploring the possibility of increasing the flexibility of course offerings to meet the individual needs of the students. Projection: Completed.

With Laboratory approval, Dr. Ward will be appointed by Dr. Hallowitz to the staff at SFSC at one dollar per semester to handle supervision of internships. This will allow us to cover all student interns within the limits budgeted.

Internship Program Planning

Dr. Hallowitz is setting up meetings with instructors to discuss internship operations. A schedule of meetings is presently unabailable due to the absence of instructor personnel over the summer period. Most likely date, Sept. 15, 1971; probable date, Sept. 30, 1971.

Continuing Education Program Planning

A memo requesting that Continuing Education courses be conducted by SMCC at the Laboratory is being handled by Bob Bennett. Options to be explored are student accreditation through Contra Costa or Merritt Colleges. Projection: Most likely date, Sept. 15, 1971; probable date, Sept. 30, 1971.

Orientation and Staff Training Program Planning

Meetings have not been scheduled due to the absence of instructors over the summer. A schedule will be set up and confirmed in September.

Staff Training

Staff Training will not be scheduled until instructors become available.

Employer Recruitment

Employer recruitment for EP students has been completed with the exception of a half-time person to work for Joyce Gall of FWL. She is presently interviewing candidates from SFSC.

PP employer recruitment is continuing. There is a possibility of introducing one person at this level at AIR. Efforts have been initiated to broaden the employer base. Cañada College brochures have been sent to other educational development agencies in the San Mateo area in an effort to interest employers in setting up career development plans for employees.

Supervisor Orientation Scheduling in progress. Most likely date, Sept. 30, 1971; probable date, Oct. 15, 1971.

Paraprofessional Program Operations

PP program operations are on schedule. Courses have been scheduled, instructors assigned, classrooms assigned, and students recruited.

Entry Professional Program Operations See attached sheet for student advisor schedules.

Continuing Education Program Operations

Negotiations are underway. Consortium courses at the PP level may be handled by Contra Costa or Merritt Colleges. Arrangements necessary for presenting these courses on Laboratory premises are being investigated.

Personnel System Planning and Design Completed.

Student Recruitment and Orientation

Student recruitment at the EP level has been completed. It is continuin at the PP level. Orientation of students will begin in September. A list of students at the EP level is attached to this report.

Guidance and Counselling

Counselling programs have been completed at both colleges.

Placement

Placement of students in job positions is essentially complete at the EP level and continuing at the PP level.

Follow-up Not scheduled until after graduation of students.

Personnel Administration On schedule.

Employment System Planning and Design

Planning and design of this system is complete. Tentative plans call for an orientation conference in the Fall to interest additional employers in the Consortium program.

Internship Employment

Internship employment is essentially complete. There is still one half-time position open with Joyce Gall who is interviewing prospective candidates from SFSC. This will fill our quota of 25 students at SFSC. AIR has also indicated that they have internship positions for two interested students.

Graduate Placement

Not scheduled till after graduation of students.

Employer Demonstration Sites

Employer demonstration site commit ments have been received from all Consortium agencies.

Evaluation System Planning and Design

Evaluation system planning and design is on schedule at this time. ETS is committed to meeting the evaluation development schedule specified in their contract.

Analysis Competencies

Not scheduled this year.

Planning and Design competencies

Planning and Design competencies are on schedule for the completed Modules (2). Lack of completed modules has resulted in delays. However, Dr. Rittenhouse has indicated that evaluation materials will be submitted within two weeks of receipt of completed materials.

Development Competencies

Work to begin in October, 1971.

Evaluation competencies

" " " " " "

Dissemination and Marketing Competencies

Not scheduled this year.

Information/Data Competencies

Competencies for Modules 1 (EP & PP), 2 (PP), 3 (EP & PP), 4 (PP), and 6 (EP) are in progress. The tests for Module 4 (EP) have been completed.

Communication Competencies

Competencies for Module 2 (PP) have been completed. Other PP competencies are on schedule. Work on EP level competencies will begin this fall.

Management competencies	Not scheduled this year.					
Intern Rating Instruments	Scheduled.	Delivery	promised	Sept.	15,	1971.
Interview Schedules	"	"	"	"	"	"
Other Instruments	"	"	"	"	"	"

Field Tests of Developments

Scheduled to begin Sept. 13 at Cañada College and Sept. 16 at SFSC.

Operations Monitoring

Scheduled to begin Sept. 13 at Cañada College and Sept. 16 at SFSC.

Special Analyses	Not scheduled to begin until 1972.

Programs and System Evaluation

Program and Systems Evaluation planning has been initiated, contracts have been signed, and planning is scheduled to start Sept. 13 at Cañada College and Sept. 16 at SFSC.

Component Evaluation	Scheduled	Sept.	13,	Cañada College,	Sept.	16,	SFSC.
Student Evaluation	Scheduled	" "	"	"	"	"	"
Employer Evaluation	"	" "	"	"	"	"	"
Monitoring and Accounting	Scheduled and performed regularly.						

Annual Reports and Budgets

On schedule. The budget request for next year's funds has been completed and is ready for review. New guidelines have been received from OE requesting that we submit a budget request for a funding level of $350,000. The additional $100,000 requires that decisions be made about its expenditure. A number of options will be presented to Dr. Hood for review.

Cost/Effect Studies	Scheduled to start in 1972.

External Audits and Reviews

On schedule. Dr. Eash spent three days with Consortium management reviewing progress and plans. Plans are being formulated for the establishment of an external review board.

APPENDIX P

TENTATIVE PLAN FOR STAFF DEVELOPMENT

Marjorie Kelley FWL Aug. 15, 1971

The Consortium believes that the success of any educational program depends upon what actually happens in the learning environment, be it a formal or informal classroom or a seminar arrangement. To create the best possible learning environment two problem areas will receive special attention:

1. As indicated in Training Characteristics, (Section F, Vol. Two of the Design Report), the Consortium feels that in light of the D,D&E content and competencies the formal, lecture type of class arrangement is the least desirable; the self-directive, learner-active, project type of program is more desirable and more typical of working conditions existing in D,D&E agencies.
2. While most teachers (instructional managers) will be highly qualified in specific disciplines, and will have had some experience in or exposure to research, few will have had experience with development as a field.

On the basis of this rationale the following Staff Development Program is planned:

Orientation

The orientation phase will consist of a series of individual and group meetings, with presentations by the Consortium members and general discussions of these topics:

1. The general nature of the D,D&E Training Program.
2. The characteristics of the training program (Section F, Vol. Two, of the Design Report).
3. The implications of the following specific training characteristics for the teaching-learning arrangement.
    (1) What organizational characteristics of the college are not in accord with the training characteristics?
    (2) What resources (human, equipment, institutional) are needed for the instructional plan?
    (3) How and where can a learning resource center be installed?
4. The differences and similarities between research projects and D,D&E projects.

5. The materials developed for the courses beginning September 1971.
6. The results of the prototype testing of one module for each course.

In-service. The scheduling of meetings during the academic year will depend upon the schedules of the personnel involved and the urgency of the problems. It is expected that there will be:

1. Informal sharing of experiences between instructional managers and course developers.
2. Suggestions for course improvement or change in emphasis.
3. Input on teaching technique in the form of mini-courses and demonstration teaching.
4. Demonstration of the inquiry teaching method at the college level.
5. Recording on video tape by the instructional manager of some critical teaching/learning situations in which essential teaching skills and strategies are identified during the replay. Subjective estimates of level of success will be made and where possible qualitative instruments will be applied.
6. Use of the Flanders Interaction Analysis System to measure:
    (1) Student-instructional manager interaction
    (2) Student-student interaction
    (3) Direct and indirect influence of the teacher on the students.
7. Use of the Mini-Course on Questioning Skills, for general appraisal of the teacner's ability to encourage student summarizing and synthesising of a set of ideas, (e.g. objectives, resources, constraints).
8. Use of the Mini-Course on Divergent Thinking, to demonstrate teaching techniques that encourage creative ideas in students.

In general, the objective of this Staff Development Program will be to move the instructional managers toward functional, individualized teaching procedures by acquainting them with appropriate teaching techniques and organizational arrangements, and equipping them with self-evaluation methods.

APPENDIX Q

PART I

TRAINING PROGRAM FOR DEVELOPMENT, DISSEMINATION, AND EVALUATION PERSONNEL

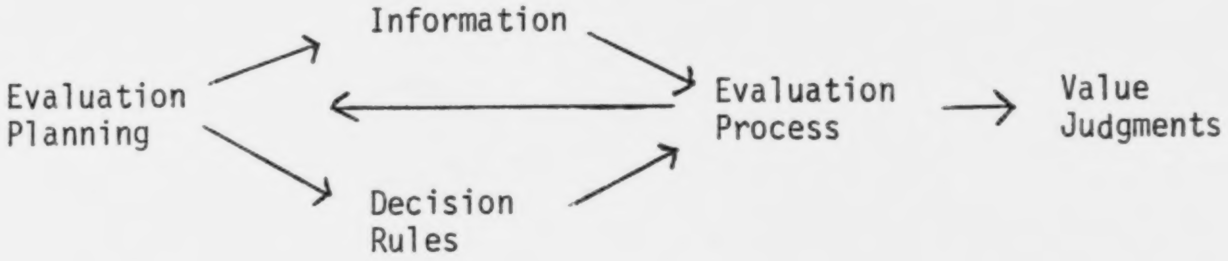
EVALUATION SYSTEM

Jonathan R. Warren
Educational Testing Service
Berkeley, California

September 1, 1971

EVALUATION SYSTEM

Evaluation requires both the collection of data and a basis for forming judgments from the data as to the value or worth of whatever is being evaluated. An evaluating system, therefore, requires an information subsystem, a decision subsystem, and procedures for integrating the two subsystems. The following diagram illustrates relationships among the subsystems.



As a result of pre-operational planning, certain kinds of information are collected. That information is organized and operated on in the evaluation process in accordance with decision rules established in the planning phase to lead to the desired kinds of evaluative judgments. Inadequacies or extraneous materials or processes in either the information or decision subsystems become apparent in the evaluation process and can then become input into the continuing (at least intermittently) evaluation planning stage to modify the information collected, the decision rules, or both.

The outcome of the process is a set of value judgments indicating the comparative worth of different entities being evaluated or the value of a single entity relative to some pre-established scale or criterion. The bases for comparison, either between entities or relative to a predetermined standard, are established with the decision subsystem.

Evaluation, or the development of value judgments in an educational program, is required with respect to the individual students, the courses and internship experiences that make up the program, and the overall program operation. Evaluation at each of these levels will be described separately with information gathering and decision making operations presented for each.

The Student Record

While not the only element in the evaluation of an educational program, the assessment of student progress is probably the most fundamental component of educational evaluation. Procedures are required to (a) assess student performance at successive stages in the program; (b) record the results of the assessment; (c) compare student performance with some standard, either fixed for all students in the program or established individually for each student; and (d) convey the results of the comparison to the appropriate persons--students, instructors, counselors, supervisors--for their consideration and possible action. In addition to providing for the monitoring of student progress, the student record should provide information on the student's characteristics and status at entry to the program and on his post-training activities and status.

Pre-Instructional Information

One segment of the student record describes each student as he enters the program. This will include information from the student's application form, pre-admission interview, institutional records, whatever pre-instructional testing is performed, and the results of planning meetings between student and staff in which his program is outlined for the coming term. Descriptive information will include the student's personal characteristics (e.g., age, sex, race, physical handicaps) and past educational and occupational experiences.

Test results will be recorded from whatever testing the student has had prior to admission to the college (e.g., SAT, ACT, GRE, statewide college admission testing programs) and from the tests administered in connection with the program. Program-related testing may include an aptitude test if one has not already been taken by the student, questionnaires and inventories of attitudes, interests and personality; appropriate achievement tests, as in reading or college-level algebra; and of course pretests.

All the above information will provide a basis for a student conference with one or more staff members in which the student's program is mapped out. The program mapping will be intended to provide an optimal combination of course, internship, and employment experiences in relation to the student's interests and expectations and the program's offerings. The result will be a written outline or chart of the course accomplishments and internship experiences anticipated for the coming academic term.

Student Progress Information

The second major segment of the student record will provide a sequential record of the student's progress as he completes course modules, encounters various internship experiences, passes planned milestones in his program, and confers with program staff. Major elements in this segment of the record are the dates the student completes the various modules and the nature of his internship experiences during the progress of the school term.

This information will come from notices of completion submitted by the student's instructors as the student completes various course modules and from ratings provided by his internship supervisor.

Scores on proficiency tests need not be part of this record since completion of a module will indicate mastery of that portion of the course. Level of mastery is of questionable value. Internship supervisor ratings should be part of this record, however, for several reasons. They are more closely related to job performance than are classroom experiences and provide a criterion against which classroom performance can be compared. They are not necessarily hierarchical, requiring one to be mastered before the next is entered, but are a varied sample from among a large number of possible job-related experiences. Movement from one internship experience to another will therefore not imply mastery of some skill, as is the case with completion of course modules, but only that exposure to a particular kind of experience has occurred.

Periodic comparisons of the student's actual progress, both in class and in his internship experiences, with his previously prepared plan will indicate to the student, the training staff, and the consortium staff when students are having difficulty and where in the program the difficulty is centered. Conferences between the student and appropriate staff members can then indicate some ameliorative action, either by the student in meeting the expectations placed on him by himself and the staff, by the student and staff jointly in modifying the student's course plan, or by the staff in modifying the program to make it more effective for that student. A brief synopsis of such conferences should appear, with their dates, on the student progress record.

The final entries in the student progress record will indicate the circumstances of the student's leaving the program, either through completion or withdrawal.

Post-Instructional and Follow-up Information

Post-instructional information will mirror to some extent the pre-instructional information. Plans, expectations, and attitudes will be assessed and compared with similar measures at entry into the program. The student's satisfaction with the program, with attention to specific sources of satisfaction and dissatisfaction will also be assessed.

From six months to one year after leaving the program, each former student will be asked for information on his present occupational and educational status and activities and for a retrospective evaluation of his experiences in the program. He will also be asked for permission to contact his current employer for an evaluation of his current job performance.

Managing the Student Record

The following table indicates the sources of information that feed into the student record:

Student Record Segment	Source of Information
Pre-instructional Record	Application Form Admission Interview Institutional Records (e.g., test scores, transcripts) Program Plan Tests, questionnaires, inventories
Progress Record	Notices of completion of modules Internship supervisor ratings Conference synopses Changes in program plan Status at time of leaving
Post-instructional Record	Questionnaires on attitudes, suggestions, plans, expectations Questionnaires on post-instructional activities Employer ratings

The key to the effective maintenance of the Student Record is the comparison of actual performance in class and on the internship with the student's program plan. This comparison should be made routinely for each student at regular intervals to be specified by the program director. Those intervals should probably be not less than two nor more than four weeks. The physical organization of the Performance Record and the Program Plan should be such that placing them next to each other will indicate immediately where actual performance has fallen behind the plan. They may, in fact, have a completely parallel organization, with the Program Plan consisting of a filled-in Performance Record.

Deviation of performance from the plan to a degree previously specified in the established standards (see Decision Processes) should trigger several kinds of action. The first should be a check to determine that the Progress Record is up-to-date with respect to each source of input information. If the record is up-to-date, notices of the discrepancy between performance and plan should go to the student and to his counselor. Ameliorative action can then be initiated by the student, his counselor, or by both jointly. A brief synopsis of any conference or of any further action taken should then be submitted for entry into the Performance Record.

One function of the Student Record is thus to monitor individual student progress. A second function is to provide summary information about collective student progress to monitor the effectiveness of classroom and internship procedures and of the overall program. Summary progress reports will therefore be compiled from the student records for transmission to the program directors at each college and to the Consortium management.

Decision Processes

The primary decision to be based on information in the Student Record is whether or not each student is making satisfactory progress. These decisions, using comparisons between each student's progress card and program plan, will be based on pre-established standards of permissible discrepancies. When the departure of a student's progress from his plan exceeds that established as permissible, his counselor, instructor, and the program director at this college will examine the situation to determine what action, if any, is indicated.

Formative Evaluation of the Instructional Program

Several kinds of instructional evaluation will occur. Director ratings of program effectiveness will be made by students and instructors. Composite measures of the collective progress of groups of students will provide a second kind of program evaluation. A third will consist of comparisons between actual and expected characteristics of the program or between two separate aspects of the program that should show some congruence.

The results of all three kinds of evaluation will be reported to the instructors, to the program director at each college, and to the Consortium. No provision is made for monitoring the extent to which individual instructors act on the evaluative information they are provided. At the management level in the Consortium as a whole, however, the continued existence of problems or areas of ineffectiveness will indicate a need for investigation to determine whether the program needs modification, the instructional personnel need help, the students need more careful preparation, or some other ameliorative action is required.

Direct Ratings

At least twice during the course of an academic term, students will complete rating scales indicating their assessment of the quality of their instructional experience. Separate rating forms will be completed for classroom and internship experiences. The content of both rating forms and the times and frequency of their administration are to be determined in consultation with the instructional personnel. Several recently developed faculty rating forms are available either for use directly or as models from which new forms can be developed. As indicated above, the results will be reported to the instructors of the classes being rated, to the program director at each college, and to the overall Consortium management, but no formal provision for follow-up or implementation of ameliorative action will be provided.

Instructors will also rate the course materials and procedures at least twice in the term, indicating areas in which students have difficulty or are not progressing as well as expected. Modifications of the procedures or of the expectations for student accomplishment may then follow.

Collective Progress

The collective progress of students through the various course modules will indicate how well the instructional procedures are accomplishing their intended purposes. In a new program, variation in the effectiveness of different segments of the program seems likely. In some modules sizeable proportions of students may not reach an acceptable level of mastery in the allotted time. In other modules the allotted time may be excessive for most students. The time required for 80 per cent, or some other fixed proportion of the students to master the content and skills of a module may be accepted as an indicator of either instruction effectiveness or instructional requirements. Where that time turns out to be longer or much shorter than anticipated, some modification of the instructional procedures will be indicated.

Although the number of students in each college program will be small in the first year or two of the program, subgroups of students may still be identifiable who perform particularly well or poorly in certain aspects of the program. Students given unusually high internship ratings but who have difficulty with certain kinds of course modules, for example, may be identifiable as a group that is homogenous with respect to some attribute of prior achievement, experience, or interest. The collective attributes of such groups will indicate program characteristics that require attention.

Comparative Information

Comparisons between different sets of data can provide evidence of satisfactory or unsatisfactory program operation. Ratings of internship performance compared with sequences of internship experiences, for example, may indicate particularly desirable or undesirable sequences for trainees to follow. The degree of match between actual program experiences of students and the "design concepts" of the program will indicate how well the anticipated program of instruction was realized.

Decision Processes

Student and staff ratings of the instructional process will be collected in a Course Record analogous for each course to the Student Record for individual students. Cumulated or summarized student data will also feed into the Course Record. Evaluation of course effectiveness will be based on comparisons between the modules presented to and mastered by the students and the established goals of the course, as well as on student and instructor ratings. Observation of internship performance, as indicated by supervisor ratings, in relation to course modules completed may also reveal course areas that need strengthening.

Staff and student ratings and summary student data in the Course Record will be delivered to instructors, counselors, supervisors, and Consortium staff at approximately four-week intervals.

Overall Systems Evaluation

The functioning of the various systems of the program and of the program as a whole can be evaluated in terms of the final product and in terms of the accomplishment of intermediate goals as well. The production of qualified personnel in educational development, dissemination, and evaluation; their placement and effective functioning in appropriate jobs; and the attainment of these objectives at reasonable cost, all constitute the ultimate basis for evaluation of the program. The primary evaluation of the total program must therefore rest on follow-up data gathered from graduates of the program and from their employers.

From six months to one year after leaving the program, whether through completion or premature withdrawal, ex-students will be asked to describe on a questionnaire their current educational and occupational status and activities. Their employers will be asked to provide performance ratings. Ratings more than a year after the student leaves the program are not considered useful because of the unknown influence of the ex-student's experiences after leaving the program.

As well as giving ratings of employee performance, employers will be asked to describe the usual training and experience of people in the job the ex-student holds and the nature of the positions to which that job might lead. The degree to which the program introduces people into a career pattern they would otherwise have difficulty entering can therefore be assessed. If the program is effective it should constitute a new source of educational Development, Dissemination and Evaluation personnel and perhaps lead to new job definitions or new career lines.

Overall program operation will also be assessed through three sets of interviews with students and staff. These will be conducted (a) about midway through an academic term, to gather impressions of the way the current term is progressing; (b) early in the second, third, or fourth term of the program to gather retrospective information on impressions about the previous term; and (c) six months to a year after leaving the program. The interviews will be semi-structured, with primarily open-ended questions, a and the structure modified in later interviews to pursue issues raised in earlier interviews.

All students need not be interviewed, and all questions need not be asked of each student interviewed. The primary purpose will be to supplement and elaborate on issues pursued in the student and staff ratings and to discover new issues of importance not covered in the ratings.

Effective functioning of the separate systems can be also evaluated in terms of their inputs to the other program systems. The Personnel System, for example, must provide the Training System with the desired number and type of trainees. The degree to which it accomplishes this function, and others, will indicate the effectiveness of the Personnel System to a large extent without regard to the ultimate product of the program.

Personnel System

The Personnel System affects the operation of the other systems of the program at a number of points. It provides for the entry of appropriate students into the program through recruitment, selection, and orientation. During the progress of training, it provides for student guidance, the placement of students in appropriate internship situations, the coordination between training and internship agencies; and it provides for placement and follow-up of students after leaving the program. Each of these functions of the Personnel System can be evaluated to a large extent by compiling relevant information from the student records.

Effective recruitment is indicated by the existence of a large number of qualified applicants from a variety of sources. Credentialed and non-credentialed personnel from schools and colleges, nonprofessional personnel from educational Development, Dissemination, and Evaluation agencies, recent high school and college graduates, recently released veterans, unemployed persons, and people varied in age, ethnic background, and other characteristics might all be represented among the applicants to the program. With the program limited in numbers initially, all possible varieties of applicants cannot be expected in the first year or two of the program. Nevertheless, a preponderance of applicants from one or two sources and homogeneous in their characteristics would indicate a poorly functioning recruiting system. The range of characteristics and backgrounds represented among the applicants will therefore provide a basis for evaluating the recruiting function of the Personnel System.

Selection, if effective, should produce a class of students who move successfully through the program on into appropriate employment or further education. A new and untried program may fall short of this objective, however, because of other factors than inappropriately selected entrants to the program. These criteria of effective selection--uniformly successful progress of students through the program and effective employment in relevant post-training activities--are therefore only incomplete indicators of how well the selection process has functioned. Failure to meet these criteria should prompt a careful, critical analysis of the factors that may have been involved.

Orientation, guidance, and internship placement and coordination will all show their effects in the student ratings of the program and the supervisor ratings of students. Again, in a new program, something less than completely effective operation can be expected. Evaluation should be largely formative. Observation of student dissatisfaction or inappropriate guidance or placement should lead to analysis of the situation and corrective action. Adequately maintained information on student characteristics and progress should make such an analysis feasible.

Evaluation of the placement and follow-up functions of the Personnel Service will hang on an analysis of the follow-up information recorded in the student records. The existence in the records of extensive information on post-training activities will indicate an effective follow-up function.

The proportion of graduates placed in appropriate employment situations will indicate effective placement. No standard is available to determine how high a proportion of appropriately placed graduates would indicate success. As with the evaluation of many other segments of the program, the collection of pertinent information to permit an analysis of what has occurred is about as much as can be expected.

Training Implementation System

The Training Implementation System is concerned with the delivery of classroom instruction and internship experiences to the students. At the simplest level, the presence of the enrolled students in an appropriate learning situation with a qualified instructor will indicate some likelihood that learning will occur. This suggests that classroom attendance patterns (in terms of total numbers rather than the identification of each student present), the nature of the experiences that occur, and the qualifications and characteristics of the instructors will all be pertinent to an assessment of the effectiveness of the Training Implementation System.

Integrating and Employment Systems

The Integrating System will be evaluated through observation of the nature of the problems reported in the student and staff ratings and revealed in the Student and Course Records. The Employment System will be evaluated through observation of the follow-up data.

Cost Effectiveness

Information on how well a program operates cannot provide a complete evaluation in the absence of information on what costs were required to achieve that level of accomplishment. The primary costs of the program are in personnel and facilities. Estimates of staff hours spent on the program will be developed by asking staff members, on randomly selected days, to describe how their time was spent on the program, and how much time was spent, during the present and preceding working days. Course related activities, internship-related activities, student contact activities not directly course-related, and administrative activities should all be assessed.

Facilities used other than the customary classroom space will also be described in these interviews with staff members, which will be conducted approximately six to eight times during the course of an academic term. While this is a schedule of fairly frequent interviews they should require no more than ten or fifteen minutes and may be conducted by phone.

The Program as a Whole

In the table which follows, items 1 - 4, 6, 7, and 14 - 19 feed into the COMPOSITE STUDENT RECORD, Item 5. Items 8, 10 and 13 feed into the COMPOSITE COURSE RECORD, Item 9. Item 11 feeds into Item 12, the COMPOSITE INTERNSHIP RECORD. Each set of composite records, which refer to individual students, individual courses, and individual internship settings, is summarized into COLLECTIVE STUDENT, COURSE, AND INTERNSHIP REPORTS, Items 20 - 22. These three summary reports constitute an overall picture of the operation of the program as a whole.

Table of Forms and Instruments

1. Application Form
2. Pre-Admission Interview Schedule
3. Summary of pre-instructional test scores
4. Synopsis Report of Conference
5. COMPOSITE STUDENT RECORD
6. Program Plan
7. Notice of Completion (of modules, learning experiences)
8. Summary of Proficiency Test Scores
9. COMPOSITE COURSE RECORD
10. Student Rating of Instruction
11. Student Rating of Internship Experiences
12. COMPOSITE INTERNSHIP RECORD
13. Instructor Rating of Program Materials and Procedures
14. Supervisor Rating of Interns
15. Student Exit Questionnaire and Interview Schedule
16. Student Follow-up Questionnaire
17. Employer Rating
18. Student Follow-up Interview Schedule
19. Employer Interview Schedule
20. STUDENT SUMMARY REPORT
21. COURSE SUMMARY REPORT
22. INTERNSHIP SUMMARY REPORT

APPENDIX Q

PART II

TRAINING PROGRAM FOR DEVELOPMENT, DISSEMINATION AND EVALUATION PERSONNEL

EVALUATION SYSTEM

FORMS AND INSTRUMENTS

Johnathan R. Warren

Fred Degenais

Educational Testing Service
Berkeley, California
September 20, 1971

The following paragraphs describe briefly the rationale behind the selection or development of each of the forms presented. Mock-ups of the forms are appended, each labeled with the letter designating the paragraph in which it is described.

In every case the form presented is considered illustrative only. While they have been developed with purpose, both inclusions and omissions having been selected for specific reasons, they have been developed without extensive collaboration with the people who will be directing and operating the programs. Changes, additions, and deletions are expected to occur as the program develops. They should not be considered fixed.

Application Form

The major purpose of the Application Form is to initiate formal consideration of a person for admission to one of the D,D&E programs. It represents the first identification of a prospective student in the program records and provides basic background information on the applicant for entry into the Student Record if he should ultimately enter the program.

This Application Form is relevant only to the training programs in educational D,D&E. It does not serve any function in admitting students to the college.

Receipt of the Application Form in the program office triggers a request to the Registrar's Office for the applicant's admission papers--previous transcripts, letters of recommendation, test score reports--to become a basis for selection. If the applicant is not currently enrolled or has not applied for admission to the college, he is advised to do so.

The essential content of the Application Form other than name, address, age, and sex, is information that could in itself determine acceptance or rejection. This consists of the applicant's educational background and a description of any physical handicaps that would incapacitate the person for D,D&E employment.

For most applicants, a pre-admission interview will provide information to aid in selection. For geographically distant applicants, or others for whom an interview is impractical, the selection decision must be based entirely on the applicant's past record, letters of recommendation, and available test scores. The Application Form therefore includes information on past work experience, information that cannot disqualify an applicant but that can help rank order applicants with respect to desirability.

The completed Application Form provides input to the Personnel System for consideration in the admission or selection process. If the student is selected and enters the program, the Application Form and the supportive documents used in selection (i.e., those from the Registrar's Office and the interview report) become the basis for initiating the Composite Student Record.

Pre-admission Interview

1. Pre-admission Interview Schedule and Report

The pre-admission interview has two purposes. One is to inform the applicant or prospective applicant about the program. The other is to gather information that may be useful in selection. If the person to be interviewed has not yet completed an Application Form, he should do so before the interview is started so duplication can be avoided. If, as a result of the interview, the person decides not to apply, his Application Form and the Interview Report will be marked to show that the application was withdrawn and will be retained. Later comparisons of withdrawn and implemented applications may provide information helpful in recruiting.

The information to be gathered about the applicant in the interview includes judgments of the person's (1) poise and presentability in conversation with a stranger, (2) verbal fluency and articulateness, (3) depth of interest in the program, and (4) past experiences in more detail than provided in the Application Form. The Interview Report, with the Application Form, feeds into the Personnel System, where the selection decision is made. Favorable action then causes both forms--Application Form and Interview Report--to be used in setting up the Composite Student Record.

2. Post-interview Rating Form

The Post-interview Rating Form is intended mainly for research and evaluation purposes at the Project Director level. It is designed to collect impressionistic data on the candidate, data which cannot be obtained from questionnaires. While there are problems associated with this kind of rating instrument (e.g., adjusting for variability across interviewers and for unreliability within interviewers) failure to gather this kind of information would remove much of the justification for an interview. The rating form can, of course, be altered, expanded, or amended to reflect the current research interests of Program management. At best, its use can be justified only for exploratory studies that may generate suggestions for modifications of selection or other program processes that should then be studied explicitly.

Pre-instruction Testing

Information from the Registrar's Office and from transcripts of previous educational performance will contain some test information. For the junior college program, high school transcripts may include percentile ranks on the SCAT Verbal and Quantative subtests, Lorge-Thorndike Verbal and Non-verbal subtests, or other tests of academic aptitude, as well as various achievement tests. The Registrar's Office may provide SAT or ACT scores. For the MA program, admissions information may include GRE aptitude and achievement scores, Miller Analogies Test scores, National Teacher Examination scores or scores from other testing programs. Where no score is available from the twelfth grade or later on an academic aptitude test or reading and writing tests for applicants to the junior college program, administration of the SCAT-II Verbal and Quantitative tests, Level I, is recommended. These are broad measures of academic aptitude. To measure achievement in reading and writing, the STEP-II tests of English Expression and Reading, both Level I, are recommended. At the MA level, no tests are recommended other than those required for admission to the graduate program at the college.

Measures of adaptability, flexibility, inclination for dealing with abstract concepts, and stability are desired at both the junior college and MA levels. The Omnibus Personality Inventory (OPI), published by Psychological Corporation, includes scales related to these qualities and has been developed for use with college populations at both the undergraduate and graduate levels. Its administration to all applicants is recommended.

None of the above tests, including the tests of academic aptitude, is considered appropriate for selection at present, although decisions about selection criteria are in the province of the Personnel rather than the Evaluation System. The tests may prove useful for selection after the test scores have been validated against appropriate selection criteria. Initially, however, they can be used tentatively in the guidance of individual students. Large discrepancies between verbal and quantitative skills may profitably be discussed with students as they plan their programs. A strong tendency toward analytic rather than discursive thinking or a preference for close supervision rather than freedom from direction, as indicated on the OPI, could be used in the same way.

In some instances, end-of-module performance tests will be administered as pretests and may lead to a student's passing a module without going through the instruction. Results of these tests will be recorded in the Composite Student Record just as the other pre-instruction tests.

Conference Report and Program Plan

The Program Plan will emerge from a conference between the student, and his or her advisor, perhpas with other instructors, the program director, or internship supervisors included when desired. Internship supervisors, if already determined, will be kept informed and their counsel sought during the program planning process to ensure that the internship experiences are integrated into the other aspects of the student's program in consideration of his abilities, previous experiences, and goals.

The Program Plan is envisioned as a type of contract between all interested parties. For the student it indicates his likely course of action for the coming school term(s). For the Program Director and Consortia and for the Internship agency it is a document that can be used for planning purposes, both for individual students and collectively for the program as a whole. Its major function, though, is to provide a set of formal expectations for each student. Deviation of student performance or progress from that expected can then trigger investigation and corrective action, either to help the student through periods of difficulty or to modify the Program Plan when its inappropriateness is the reason for the student's deviation from it. Deviation in the direction of exceeding expectations is almost as important as falling short, since it would indicate a need to reexamine and reorganize the student's program to keep him productively involved. This in turn may require provision of experiences earlier than initially planned and a reorganization or reallocation of program resources.

As a specific set of expectations about student progress, the Program Plan enters the Composite Student Record. Actual student progress and performance can then be compared directly with what is expected.

Summary Proficiency Scores

The Summary Proficiency Scores Form will provide collective information on class performance for assessment of course effectiveness. When made part of the composite Course Record, it will be integrated with the scores of whatever diagnostic tests are administered at the beginning of a module and with other data on course effectiveness, such as student and instructor ratings. Differential course effectiveness for students with different characteristics or having different sets of experiences will therefore be assessable in principle. In practice, during the first year or two of the Program, the numbers of students involved will be too small for differential assessment to be feasible.

Student Rating of Course

The Student Rating of Course form is an instrument designed to obtain information on the effectiveness of the course or module from the student's point of view. It is a form that can be filled out in ten or fifteen minutes and covers the effectiveness of the instructor's teaching procedures, the instructor's responsiveness to or awareness of students, the student's reaction to class, and the difficulty and appropriateness of materials.

The object of the form is to summarize the student's attitude toward the module at exit for both the instructional staff and Program Management. The form is not intended so much to judge the instructor as it is to indicate to him whether he is getting through to the students and whether the course procedures and materials seem appropriate and effective to the students. As the Program develops, this form will take on added significance for both management and subcontractors, since baseline information will become available from which deviations can be noted and targeted either as areas to be improved or models to be emulated. It will be one of the prime instruments for determining whether or not the product is satisfying one kind of consumer.

Instructor Rating of Course Form

The Instructor Rating of Course form is designed to serve both Project Management and the subcontractors who develop module material. It represents a needed link in the cycle of development-implementation-modification and supplies a professional perspective on the adequacy of materials while providing a check on the observations of students gathered through the Student Rating of Course instrument.

The form assesses the appropriateness of materials in relation to Program objectives, student abilities, and the dynamics of the classroom. Instructors are asked, in simple multiple-choice form, to respond to items on task difficulty, completeness of module material, ease of use, and integration of materials into the curriculum. In addition, they are also asked to comment on the usefulness of the materials in view of student abilities, the pace of presentation, and student receptivity. Provision is made for the instructor's recommendations as to possible ways to improve course materials, content, and methods.

Internship Ratings

Two separate forms are provided to give interns an opportunity to describe their experiences in terms of both content and effectiveness. The first, labeled Intern's Description of Internship, provides a way to determine, with some specificity, the kinds of activities in which the intern engaged. This form should be completed by the intern at the close of each separate internship placement.

The second form, labeled Internship Rating Instrument for Interns, is to be completed at the same time as the descriptive form. It provides a subjective view of the effectiveness of the internship experiences.

Both forms are intended to be largely illustrative. Additional items should be written in consultation with interns, supervisors, and program directors after some experience with the program has occurred.

Intern Supervisor's Rating Form

To parallel the interns' ratings of their experiences, and to add evaluative information on student performance, the internship supervisors will be asked to rate the performance of the interns under their supervision. As with other forms, the items are to be modified in consultation with students, supervisors, and program directors to deal with those aspects of intern performance considered most important.

The following forms have not yet been developed because of their dependence on information to be gathered during the first few months of program operation.

a. Forms for deriving follow-up and feedback information from graduates and dropouts.

b. Forms indicating student satisfaction with recruitment and placement procedures.

c. Interview schedules for obtaining student feedback on training.

d. Forms for obtaining follow-up information from employers and employed ex-students.

Because of its developmental nature, the program will be undergoing substantial modification and revision as its first year of operation progresses. Retrospective measures, as each of the above measures is, should have reference to specific key aspects of the processes being rated if they are to be most effective. The first two or three months of operation can be expected to raise questions that can best be answered through retrospective reports. While some questions of value can be anticipated, the most important ones will probably not be identified until some operational experience has occurred.

To develop the material on which the forms listed above can be based, interviews will be conducted at approximately four-week intervals with selected students and staff members to determine problems encountered, changes in expectations, shortcomings and disappointments in the program, missed opportunities, newly developed points of view, and the like. From these, forms to derive focused retrospective reports will be developed.

Q-20

APPLICATION FORM - EDUCATIONAL D,D&E PROGRAM

Please print: Date: ____________

Name: ______________________________ Miss___ Mrs.___ Mr.___
Last First Initial

Address: (Local) ______________________________

(Permanent) ______________________________

Phone ____________ Birthdate ____________ Soc. Sec. No. ________

Have you been admitted to college for the coming term? Yes ______ No ______

If admitted to the D,D&E program, when would you be able to start? ____________

How much of your working day do you expect to spend on college studies?

1/4 ______ 1/2 ______ 3/4 ______ Full time ______

Are you now working for an educational agency? Yes ______ No ______

If yes, for whom? ______________________________

What is your job title? ______________________________

Name of school or college last attended: ______________________________

Location: ____________________

Dates: ____________ to ____________ Degree: ____________

Are you a high school graduate? Yes _____ No _____
Diploma? ______
GED? ______
USAFI? ______

Colleges attended other than that listed above:

From	To	College	Degree

Work experience:

From	To	Employer	Job Title

Q-21

The following information has nothing to do with your admission to the D,D&E program. It is merely a way of gathering information on the kind of person attracted to the Program. It is a part of our continuing research on ways to improve the Program.

Please circle the number to show where you feel you belong on a scale of seven between the two opposite words.

Example: strong 1 2 3 4 5 6 7 weak

1.	social	1	2	3	4	5	6	7	unsocial
2.	good	1	2	3	4	5	6	7	bad
3.	active	1	2	3	4	5	6	7	passive
4.	eager	1	2	3	4	5	6	7	indifferent
5.	strong	1	2	3	4	5	6	7	weak
6.	free	1	2	3	4	5	6	7	constrained
7.	kind	1	2	3	4	5	6	7	cruel
8.	unselfish	1	2	3	4	5	6	7	selfish
9.	rash	1	2	3	4	5	6	7	cautious
10.	excitable	1	2	3	4	5	6	7	calm
11.	severe	1	2	3	4	5	6	7	lenient
12.	hard	1	2	3	4	5	6	7	soft
13.	doer	1	2	3	4	5	6	7	thinker
14.	wise	1	2	3	4	5	6	7	foolish
15.	present	1	2	3	4	5	6	7	future
16.	talker	1	2	3	4	5	6	7	listener
17.	hunter	1	2	3	4	5	6	7	hunted

18.	verbal	1	2	3	4	5	6	7	mathematical
19.	starter	1	2	3	4	5	6	7	finisher
20.	abstract	1	2	3	4	5	6	7	concrete
21.	uncritical	1	2	3	4	5	6	7	critical
22.	reader	1	2	3	4	5	6	7	writer
23.	planner	1	2	3	4	5	6	7	executor
24.	accepting	1	2	3	4	5	6	7	rejecting
25.	serious	1	2	3	4	5	6	7	playful

Copies to:

Program Supervisor for C.S.R.____________

Program Headquarters ____________________

For Office Use

Records checked___________

Interview scheduled___________

Testing scheduled___________

File started___________

Accepted___________

Denied___________

Pending___________Reason___________

Application withdrawn

Q-23

College: ______________

PRE-ADMISSION INTERVIEW FORM

Name: ________________________________ Date: ______________

(The interviewer should check the Application Form for missing or ambiguous information and request clarification before proceeding with the interview)

The questions need not be asked in precisely the words given, but the meaning should be retained. Responses should be recorded with check marks or brief notes in the space following each question. Questions to elaborate on answer should be asked wherever they are felt to be appropriate.

1. You're interested in the program in educational D,D&E. Would you tell me how you learned about it?
   - Other student ____________
   - Employer ____________
   - Bulletin Board ____________
   - Teacher ____________
   - Other ____________ Describe: ______________

2. What interested you in the program?

3. Are there questions you have about the program? (Discussion of the nature and requirements of the program should continue until both persons feel satisfied with the applicant's understanding of the program. Note below the content of the major questions asked.)

4. On your application, you showed the most recent school you attended as____________________________. Would you tell me about that--what you found satisfying and what you didn't like about your latest school or college experiences? (The applicant should be asked to elaborate on points he raises until the interviewer feels he has a reasonably good picture of the applicant's attitudes about his previous schooling and their focus.)

5. a. In view of what you've been saying, how would you like to see the coming year in college develop?

   b. Will you be working while going to college?

   Yes ______ No ______

   c. (If Yes above) How will you fit college and the job together?

6. a. Can you say at this point how far you would like to go in terms of formal education?

No; uncertain ____________
AA ____________
BA ____________
MA ____________
PhD ____________
Other ____________

b. How far do you realistically expect to go?

Less than AA
AA ____________
BA ____________
MA ____________
PhD ____________
Other ____________

7. Have you any plans yet for the kind of work you would like to do? (Ask for more than a yes or no.)

8. How do you see your educational plans and job expectations tying together?

9. To shift back from your future plans to what you've done in the past, how do you like to spend your time?

10. a. Do you do much reading?

    b. What kinds of things?

    c. What is the most recent thing you've read other than a newspaper?

    (If a magazine is given, ask the following:)

    What's the most recent book you've read?

11. Do you ever work puzzles, play games, engage in sports? (If so, what kind?)

12. Have you ever built something? (Carpentry, models, autos, electronics, etc.)

13. Have you any health problems? (If so, what?)

(If yes, discuss with the applicant whatever relevance his health problem may have for educational

14. A key part of the D,D&E Program is that each student will work as an intern in an educational agency. An internship is a kind of on-the-job training for which the student receives pay. Usually the internship is begun while the student is enrolled in school because it is important that the D,D&E trainee learn from working with real problems. (Discuss the internship possibilities, opportunities, and possible pay.) Do you think you would like to become an intern?

Is there anything that would prevent you from becoming an intern? (e.g., children, other employment, extended educational aspirations, etc.)

Interviewer's Name ____________________

Title ____________________

School ____________________

Copies to:

Program Supervisor for C.S.R. ____________

Program Headquarters ____________

For Office Use

Tests taken ____________________

Accepted ____________________

Denied ____________ Reason ____________

____

____

College Application complete ____________

Admitted to College ____________

Pre-instruction Test Score Form started ______

Pending ____________ Reason ____________

Conference Scheduled ____________

Application withdrawn ____________

Q-28

POST-INTERVIEW RATING FORM

This checklist is to be completed by the interviewer immediately following the pre-admission interview.

On the basis of the applicant's behavior and responses during the interview, indicate your impression of how he or she would compare with a typical college student of the same year in college as the applicant by circling the appropriate number.

Applicant's name: ______________________________ Date: ________________

Interviewer's name: ______________________________

		Much Lower	Somewhat Lower	About the same	Somewhat higher	Much higher
1.	Verbal fluency	1	2	3	4	5
2.	Poise	1	2	3	4	5
3.	Presentability	1	2	3	4	5
4.	Persistence	1	2	3	4	5
5.	Flexibility	1	2	3	4	5
6.	Complexity of thinking	1	2	3	4	5
7.	Practicality	1	2	3	4	5
8.	Imagination	1	2	3	4	5
9.	Responsibility	1	2	3	4	5
10.	Organizing ability	1	2	3	4	5
11.	Personal warmth	1	2	3	4	5
12.	Stability	1	2	3	4	5
13.	Commitment	1	2	3	4	5
14.	Perceptiveness	1	2	3	4	5

15.	Agreeableness	1	2	3	4	5
16.	Analytic ability	1	2	3	4	5
17.	Interest in problem solving	1	2	3	4	5

Copies to:

Program Supervisor ____________________

Program Headquarters ____________________

Q-30

PRE-INSTRUCTION TEST SCORES FORM

This page is intended to substitute for a form which will abstract and consolidate test scores and interpretations from several sources prior to the D,D&E candidate's Pre-Instruction Conference

It will be designed after a decision has been made on the exact tests to be administered. The form will be designed as a work sheet to be used prior to the Conference to aid in selection and during the Conference for guidance in Program Planning.

It will contain:

1) High school or college GPA
2) High school or college honors
3A) For PP students it will contain scores from tests given during high school years. These may include:
    a) State mandated tests
    b) Other test scores (e.g. SCAT, STEP, SAT, ACT)
    c) A measure of intelligence
3B) For EP level students it will contain scores such as GRE, SAT and ACT
4) Scores and percentiles for Project mandated tests
5) A scale or scales which permit the rating and ranking of D,D&E candidates for selection, guidance, and research purposes

Copies to:

Program Supervisor for CSR_____________

Instructor(s) where appropriate _______

Program Headquarters _________________

For office use

Conference scheduled ___________

Pending __________ Reason______

____

Application withdrawn__________

Q-31

CONFERENCE REPORT AND PROGRAM PLAN

Name: ______________________________ Level AA__________ Date:________
MA__________

Program Supervisor:____________________ College__________________

Courses agreed upon as part of the D,D&E Program:

Module Courses	Units or Hours	When	Required Courses	Units or Hours	When	Related Electives	Units or Hours	When

Nature of the internship:

Place of internship: Company: ______________________

City ______________________

Approximate duration of internship:__________________ Dates:________

Will the internship be contingent upon completion of a particular course and module sequence?__________ If so, how will the internship be integrated with the course of study?__________________________

Antipicipated date of completion of course work:__________________

Copies to:

Student______________

Program Supervisor for CSR__________

Instructor(s) where appropriate ______

Program Headquarters ____________

SUMMARY PROFICIENCY SCORES FORM

This form will be prepared for each course in the Program. It will be designed to provide collective information on a course, module by module, for a particular cohort. In general it will take the form:

Course name:____________________ Date:____________ College:______________ Instructor:______________

Group statistics for end of module tests:

	Mean	Standard Deviation	Range of Scores	Class Size
Module One				
Module two				
Module three				
Module four				
Module five				
Module six				
End of course examination				

Distribution of grades:	Frequency
A	
B	
C	
D	
Other _____	
_____	
Incomplete or Continued	

How many students began the course? ______________

How many students dropped out of the course? __________

Copies to:

Program Director for CCR __________

COURSE RATING INSTRUMENT FOR STUDENTS

Directions: Circle the number that represents the response closest to your opinion. Use any pen or pencil you have handy.

NA (0) - Not Applicable or don't know. The statement does not apply to this course or instructor, or you simply are not able to give an honest response.

SA (1) - Strongly Agree. You strongly agree with the statement as it applies to this course or instructor.

A (2) - Agree. You agree more than you disagree with the statement as it applies to this course or instructor.

D (3) - Disagree. You disagree more than you agree with the statement.

SD (4) - Strongly Disagree. You strongly disagree with the statement.

Part A. Effectiveness of Instructor's Teaching Procedures.

The instructor:	NA	SA	A	D	SD
1. was generallly well-prepared	0	1	2	3	4
2. used enough illustrations and examples to clarify the material.	0	1	2	3	4
3. presented material in a way that made sense to me, telling me what was really important and showing its relationship to other important things.	0	1	2	3	4
4. generally seemed aware of whether I could follow his presentation with understanding.	0	1	2	3	4

Part B. Instructor's Responsiveness to or Awareness of Students.

The instructor:					
1. encouraged me to ask questions, discuss problems, and speak freely.	0	1	2	3	4

	NA	SA	A	D	SD
2. usually returned homework assignments in a day or two.	0	1	2	3	4
3. graded me on the basis of enough evidence.	0	1	2	3	4
4. had a grading system that was fair.	0	1	2	3	4

Part C. Student Reaction to Instructor

The instructor:

	NA	SA	A	D	SD
1 held my attention	0	1	2	3	4
2. encouraged me to be creative in my assignments.	0	1	2	3	4
3. raised challenging questions or problems for discussion.	0	1	2	3	4
4. increased my interest in the subject matter.	0	1	2	3	4
5. stressed the important things to learn in this course.	0	1	2	3	4

I, myself:

	NA	SA	A	D	SD
6. looked forward to conferences	0	1	2	3	4
7. made an honest effort to learn in this course.	0	1	2	3	4

Part D. Miscellaneous

Directions: Circle one response number for each question or statement.

1. For my preparation and ability, the level of difficulty of this course was:

    1. Very elementary
    2. Somewhat elementary
    3. About right
    4. Somewhat difficult
    5. Very difficult

2. The work load for this course in relation to other courses of equal credit was:

    1. Much lighter
    2. Lighter
    3. Average
    4. Heavier
    5. Much heavier

Part D. (continued)

3. For me, the pace at which the instructor covered the material during the term was:

   1. Very slow
   2. Somewhat slow
   3. Just about right
   4. Somewhat fast
   5. Very fast

4. The printed materials for this course were:

1.	Very good	1.	Very clear	1.	Well illustrated
2.	Good	2.	Reasonably clear	2.	Rather well illustrated
3.	Adequate	3.	Adequate	3.	OK
4.	Not so good	4.	Not clear at all	4.	Poorly illustrated
5.	Terrible	5.	Very confusing	5.	Confusingly illustrated

5. The supplementary readings for this course were:

   1. Well integrated into the course material
   2. Rather well integrated into the course material
   3. Adequately integrated into the course material
   4. Not very well integrated into the course material
   5. Not related to the course material at all

6. The audio-visual aids (television, movies, slides, tapes) were:

1.	Very interesting	1.	Informative
2.	Interesting	2.	Somewhat informative
3.	Adequate	3.	OK
4.	Uninteresting	4.	Not very informative
5.	Rather boring	5.	A waste of time

Would you like to make any comment at this time?

Q-36

INSTRUCTOR'S RATING OF COURSE FORM

Directions: Circle the number that represents the response closest to your opinion. Use any pen or pencil you have handy.

NA (0) - Not applicable or don't know. The statement does not apply to this course or instructor, or you simply are not able to give an honest response.

SA (1) - Strongly Agree. You strongly agree with the statement as it applies to this course or instructor.

A (2) - Agree. You agree more than you disagree with the statement as it applies to this course or instructor.

D (3) - Disagree. You disagree more than you agree with the statement.

SD (4) - Strongly Disagree. You strongly disagree with the statement.

Part A. Effectiveness of Materials.

The materials:	NA	SA	A	D	SD
were generally well-integrated from module to module	0	1	2	3	4
contained material which held the student's interest	0	1	2	3	4
were generally designed to match the abilities of the students	0	1	2	3	4
were complete in themselves and required little supplementary outside reading	0	1	2	3	4
stimulated classroom discussion	0	1	2	3	4
were easy to use	0	1	2	3	4

Part B. Structure of the Course

The course structure:					
was appropriate to the ability level of the students	0	1	2	3	4
permitted presentation of material at an appropriate pace	0	1	2	3	4

	NA	SA	A	D	SD
was loose enough to permit students to pursue topics of interest on their own	0	1	2	3	4
induced an appropriate level of responsiveness in students	0	1	2	3	4
was logical in its overall design	0	1	2	3	4
was optimally progressive in difficulty of concept and task	0	1	2	3	4

Please feel free to comment on the course and recommend areas where change is needed.

Changes in materials?

Changes in content?

Changes in methods?

General recommendations?

Copies to:

Program Director for CCR_______________

Q-38

INTERN'S DESCRIPTION OF INTERNSHIP

Name: ______________________________

Dates: From ____________ to ____________ Duration ______ weeks

Job title: ______________________________

Agency: ______________________________

Supervisor: ______________________________

Listed below are a number of kinds of experiences you may have had on your internship. Please indicate whether, in your judgment, they were as useful to you as they might have been.

	No Experience or Not Applicable	Not Useful	Somewhat Useful	Quite Useful
Reviewed the analysis of a problem				
Performed bibliographic research				
Abstracted professional publications				
Organized data for analysis				
Prepared data analysis plan				
Prepared data for display				
Analyzed data using prescribed procedures				
Wrote up results of data analysis				
Prepared simple marketing/ dissemination plan				
Prepared a simple test plan				
Prepared oral or written reports				

	No Experience or Not Applicable	Not Useful	Somewhat Useful	Quite Useful
Collected and organized professional judgments on the feasibility of proposed applications				
Prepared a detailed product description statement				

INTERNSHIP RATING INSTRUMENT FOR INTERNS

Directions: Circle the number that represents the response closest to your opinion. Use any pen or pencil you have handy.

NA (0) - Not applicable or don't know. The statement does not apply to this course or instructor, or you simply are not able to give an honest response.

SA (1) - Strongly agree. You strongly agree with the statement as it applies to this course or instructor.

A (2) - Agree. You agree more than you disagree with the statement as it applies to this course or instructor.

D (3) - Disagree. You disagree more than you agree with the statement.

SD (4) - Strongly disagree. You strongly disagree with the statement.

	NA	SA	A	D	SD
1. There was plenty of opportunity to ask questions and get help	0	1	2	3	4
2. The problems I worked on stimulated my interest	0	1	2	3	4
3. There was variety in the assignments	0	1	2	3	4
4. Good supervision and direction kept my experiences productive	0	1	2	3	4
5. Other employees were helpful	0	1	2	3	4
6. There was general concern among those I worked with for my opportunity to learn	0	1	2	3	4
7. My assignments were generally in line with my training and ability	0	1	2	3	4
8. When possible, my work assignments were designed to complement my course work.	0	1	2	3	4
9. My work as an intern contributed something of value to the project to which I was assigned	0	1	2	3	4

Q-41

INTERNSHIP JOB PROGRESS

Name: ____________________

Dates: From ______________ to ______________ Duration: ______ weeks

Internship Job Title: ____________________

Skills practiced:	Relevant Course & module	% of total time

Signature: ______________

Title: ______________

Company: ______________

The above information is to be completed at the end of each period of internship spent in the same position. Changes in position, activities, or supervisor should lead to completion of one form and the initiation of a new one.

Copies to:

Composite Internship Record ______________

Program Headquarters ______________

Q-42

INTERN SUPERVISOR'S RATING FORM

Intern's Name ______________________________ Period covered: From ____ to ____

College ______________________________ Approximate hrs/wk worked in the period: ________

Listed below are a number of qualities of performance that are sometimes observed in educational D, D & E personnel. Few jobs exist in which all are relevant or can be observed. Rarely, if ever, should a person be rated on all of them. Instead, select only those qualities or attributes for which you have observed performance that is particularly good or that falls short of what you would expect of someone at comparable level of training. Leave the others blank.

	Quite Poor	Poor	Good	Exceptional
Actively seeks out information				
Commands the confidence of others				
Is well liked by his or her associates				
Learns quickly				
Learns thoroughly				
Can be depended on to complete a task once assigned				
Seeks help when necessary				
Shows interest in his work				
Persists at a task until completed				
Profits from criticism				
Profits from experience				
Actively seeks new experiences				
Produces work with care				
Exercises sound judgment				
Responds well under pressure				
Overall impression				

Copies:
Composite Student Record ________
Composite Internship Record ________
Program Headquarters ________

Internship supervisor's name ________________
Title ________________
Company ________________
Date ________________

APPENDIX R

AN EVOLVING ADVANCED-GRADUATE-LEVEL TRAINING PROGRAM IN THE MANAGEMENT OF EDUCATIONAL RESEARCH, DEVELOPMENT, DISSEMINATION & EVALUATION AND IN EDUCATIONAL POLICY, PLANNING AND MANAGEMENT

This paper outlines an initial effort aimed at the design of an advanced-graduate-level program for the training of management personnel for educational R&D and educational planning.

Bela H. Banathy
September 1971

The Problem

The hope of realizing a satisfactory return on investments in educational R&D rests heavily on the quality of personnel available to: (a) translate research findings into usable developments, (b) evaluate alternative educational options, and (c) communicate findings so as to assist school personnel in implementation and utilization of R&D products.

The problem confronting education is that adequate training programs do not exist for research, development, evaluation, and dissemination (RDD&E) personnel; the training content is uncertain; and the demand for personnel is far greater than the supply. The expectation is that a replicable and adaptable model, created by a consortium of highly experienced educational development agencies in collaboration with committed colleges and universities, should advance significantly the capacity and quality of RDD&E manpower development.

Background

Supported by the Office of Education, the Far West Consortium was established in June of 1970 to design a training system for development dissemination, and evaluation (D,D&E) personnel in education. The Consortium now consists of an educational laboratory, three major R&D agencies, a national non-profit educational testing corporation, one community college and a graduate school.

The training program and system are being designed as partial solutions to the R&D problems confronting education: the lack of adequate D,D&E training and programming, the uncertainty regarding content, and the disproportionate demand over supply of trained personnel.

The Training Program consists of a set of programs based on need assessments and job-and-task analyses. Formal training at training institutions in conjunction with carefully engineered internships at the development agencies will lead to AA and M.A. degrees, for paraprofessionals and entry-level professionals respectively. Continuing education opportunities for practicing D,D&E personnel will also be included.

The Training System will be designed through the combined talent and experience of the Consortium members. By 1974, the Training System will have been developed, tested, evaluated and an implementation package prepared so that adoption and adaptation can take place throughout the country.

The Purpose of the Proposed Effort

The inclusion of an advanced-graduate level in the framework of the Consortium would fill the need for extending RDD&E training to advanced professional levels. More specifically it would provide a new breed of managers of educational RDD&E and thus it would meet manpower needs at federal, regional, state and local levels.

Initial Planning Efforts

In order to pursue the purpose stated above, during Spring 1971 informal discussions were held between Paul Hood and Bela Banathy of the Far West

Laboratory and Dean Theodore Reller and Bentley Edwards of the School of Education, University of California, Berkeley (UCB). As an outcome of these discussions, Dean Reller appointed a Committee headed by Bentley Edwards, which met with Paul Hood and Bela Banathy on May 28, 1971. Others attending were Rodney Reed, Lawrence Stewart and John Glenny.

At the meeting the increasing need for RDD&E personnel at all professional levels and the problem of locating adequately trained personnel were discussed. The Far West Consortium's approach to solving this problem, the progress made to date, and the idea of an advanced-level training program were outlined and discussed. It became obvious that the content and structure of a Ph.D. program would vary considerably from the programs leading to the M.A. level. It was felt, however, that there were no serious obstacles to further exploration and coordination in the development of such a program. The decision was made that the Far West Consortium would produce an outline of such a program for review by UCB prior to the submission of a formal request for design funds from OE.

Additional meetings were held on July 23, 29, and August 9, 1971, with Rodney Reed, UCB, and Bela Banathy and Joseph Ward, Far West Consortium, to outline a design proposal. Draft design proposals were reviewed and revised. As the outcome of these meetings, an early image of an advanced-graduate program and some design plans have emerged.

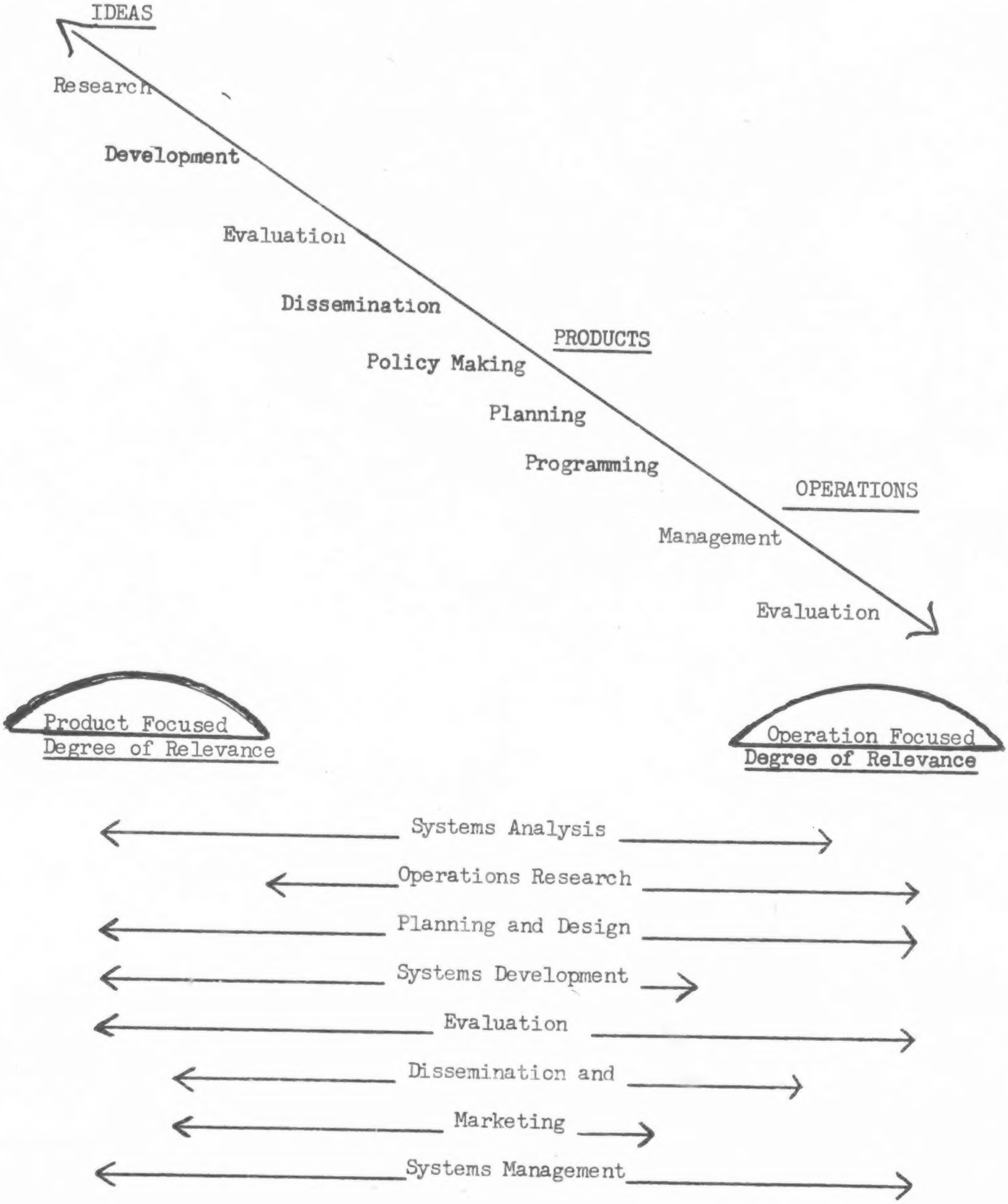
An Initial Image of the Program

An advanced program could be organized around two major areas of expertise. The first might be considered product focused and would include skills and knowledge related to the mangement of efforts involved in research, development, evaluation and dissemination of educational products. The second would focus on educational operations at various levels, concerning management skills and knowledge related to educational policy making, planning, programming, management and evaluation.

Figure 1 projects an early image as to the content and organization of such programs.

Figure 1

An Early Image of an Advanced Program


IDEAS
Research
Development
Evaluation
Dissemination
PRODUCTS
Policy Making
Planning
Programming
OPERATIONS
Management
Evaluation
Product Focused
Degree of Relevance
Operation Focused
Degree of Relevance
Systems Analysis
Operations Research
Planning and Design
Systems Development
Evaluation
Dissemination and
Marketing
Systems Management

Our analysis indicates that to a great extent the same heuristics are required in both the product-focused and operations-focused domains although in two different functional contexts.

A Design Plan

In order to move toward the establishment of an advanced graduate program four main design efforts are planned:

- evolve design information,
- design training,
- design support systems, and
- plan for implementation.

Design information will evolve as need assessment is accomplished, priorities are established, job and task analyses conducted and job competence requirements specified. The job and task analysis and the specification of job competencies will be accomplished with a combination of approaches including a review of the literature, a retrospective analysis, a time sampling study, and a task inventory survey.

The design of training will begin with an examination of design requirements. Design parameters will have to be "fixed" so that specific sets of design characteristics can be selected and related to one another in a feasible configuration. This will then be judgmentally tested in terms of its fit with a large number of constraints (e.g., institutional rules, facilities, personnel capabilities, logistics, time schedules, departmental funds, contingencies for delays in interdependent developments, etc.). Basically, the goal will be to bring the best and soundest principles of educational practice and instructional technology to bear on the selection of the best achievable combination given the estimated constraints.

The second main effort of training design is to define and delineate the content of training, to present a rather complete description of how training will be accomplished and to suggest how it should be assessed.

The design and interface of support systems involves the definition of systems goals, operations and functions; and the selection of the components and arrangements of such support systems as student personnel, staff, evaluation, facilitation, management, and information.

A plan for implementation of the design in terms of curriculum development and instruction programs will conclude our design effort.

APPENDIX S

DEVELOPERS' COMMENTS ON CONSORTIUM PARTICIPATION, ACTIVITIES AND COMMUNICATIONS

AMERICAN INSTITUTES FOR RESEARCH
Center for Research and Evaluation
in the Applications of Technology in Education

September 20, 1971

Dr. Joseph Ward
Far West Laboratory for Educational
Research and Development
1 Garden Circle
Berkeley, CA 94705

Dear Dr. Ward:

We appreciate this opportunity to advise you of the degree to which AIR strongly endorses the objectives of your DD&E Consortium Program. We are looking forward to the time when the program is completed and operational as it will be of great assistance to AIR in recruiting staff with appropriate training backgrounds.

As you know, two of our employees are already enrolled in the Consortium Program at San Francisco State University and an additional twelve employees (over 25% of the junior professional staff at the Palo Alto office) have indicated a strong desire to take at least portions of the program on an extension or continuing education basis.

In addition, we expect to be using many of the Consortium Program materials this fall with new employees at AIR.

Finally, we look forward to being able to provide engineered internship experiences for students enrolled in the program at Canada College. AIR has worked with the developers of the engineered internship facet of the program at Canada College, providing information about what a DD&E agency is like and what the interns can look forward to in such an agency.

From the large proportion of AIR staff members who expressed a desire to participate in the Consortium Program in some way, it seems very clear that the program is indeed providing training in areas that are not dealt with elsewhere and that are necessary for work in educational DD&E. It has been our experience that many people, including young Ph.D.'s, go into educational DD&E without really knowing what to expect and, as a result, without being fully prepared for this work. Your materials should do much to alleviate this problem.

In conclusion, we feel that the program effort to date has been very successful and we are very much looking forward to continued participation in the Consortium.

Sincerely,

James a Dunn

James A. Dunn, Director
Developmental Systems

iky

•I•R ◇ CREATE ☐ P.O. BOX 1113, PALO ALTO, CALIFORNIA 94302 (LOCATION: 1791 ARASTRADERO ROAD) ☐ TEL. (415) 328-3550

S-2

SAN
MATEO
JUNIOR
COLLEGE
DISTRICT

CAÑADA COLLEGE
Redwood City

COLLEGE OF SAN MATEO
San Mateo

SKYLINE COLLEGE
San Bruno

September 14, 1971

Robert L. Bennet
Assistant to the Chancello
for Resource Developmen
and Project Coordinatio

Ref: Project FWL - 71- 631

Topic: Progress Report, Cañada College

Joseph S. Ward
Senior Program Associate II
Communication Program
Far West Laboratory for Educational
Research and Development
1 Garden Circle, Hotel Claremont
Berkeley, California 94705

Dear Joe:

It is apparent at this stage of development that the community college component of the Design, Development and Evaluation (DDE) Program is moving forward successfully. The enrollments in the three newly developed courses are equal to or above expectations. Counseling has proceeded as planned and reported earlier. Preparations for student involvement in engineered internship are underway as planned and reported.

At this time a new development is taking place in community college activities throughout California which will have a significant impact on DD&E programs. The San Mateo College District, including Cañada College, is providing leadership along with three other districts and the Office of Chancellor, California Community Colleges, in a program to establish coordinated instruction teaching procedures in all 93 community colleges. The DD&E project can become one of the first programs to be designed for and disseminated to all California colleges.

Coordinated Instruction is a term used in new legislation passed by the 1970 California Legislature. The new law (AB 1171) provides state financial support for instructional programs using modern procedures such as programmed learning, television and other innovative techniques to teach atudents. A state plan is underway to provide in-service training for community college teachers in methods of developing and using coordinated instruction. An unusual opportunity for the growth of DD&E programs will no doubt follow in the new pathway which is now being established for coordinated instruction programs.

Other unique contributions of Cañada College to the consortium effort are:

1. Expert developers of course materials under contract;
2. Development of engineered internship plans and procedures;
3. Development of counseling and guidance plans and procedures;
4. A special laboratory for DD&E students.

Teacher-developers Kennedy, Upton, Kilpack and Pallister have worked with consortium staff members from San Francisco State College, American Institute for Research and Technicon Information Systems inthe development of subject materials. Developers Pallister, Kilpack and Bennett have served as primary participants in preparing plans and procedures for engineered internships and counseling for DD&E students. This has been reported more extensively in Implementation of the DD&E Program in the Community College, dated July 22.

In summary it is clear that the DD&E program has moved successfully to the point of enrolling students in three courses plus engineered internship for the first semester of community college operation. The consortium has provided the necessary technical resources to accomplish the task of development to this point and it appears that learning activities are ready to proceed. All indications point to reasonable progress during the fall semester at Cañada College. A substantial increased benefit will occur through California's new legislation on coordinated instruction in community colleges which will directly provide support for expansion to other colleges of DD&E.

If I can provide you with other information on progress of the program please give me a call.

Sincerely,

Bob

Dr. Robert L. Bennett

Enclosures (2)

S-4

EDUCATIONAL TESTING SERVICE — WESTERN OFFICE

1947 Center Street
Berkeley, California 947[illegible]
Area Code: 415 849-[illegible]

John S. Helmick
Vice-President

September 14, 1971

Dr. Joe Ward, Senior Program Associate II
Communications Program
Far West Laboratory for Educational R & D
1 Garden Circle
Hotel Claremont
Berkeley, California 94705

Dear Joe:

This is in response to your request for reactions concerning the Consortium functioning over the past six months. It is a little difficult to respond because I have trouble sorting out the role of ETS as a subcontractor from that of it as a Consortium member. It is my understanding that the latter is the object of your inquiry and I shall try to respond in that mode. Nevertheless, other aspects may enter into my judgments.

As we have discussed throughout, the Western Office of ETS is something of a fringe category as a developer. Most of our activity is in other directions and our needs are therefore not primarily in the area of consortium activity. We have no serious unmet needs in the area at this time.

Our participation in the Consortium has been primarily through our role as a subcontractor and in that role we are, I hope, contributing to the development of the student evaluation portion of the program. There is the possibility of one member of our staff becoming a trainee and working here on a part-time basis. We have also indicated willingness to provide orientation to the work of ETS for trainees. The likelihood of being able to support any number of trainees from outside our own organization continues to be small.

I have not had any personal involvement in the activities of the Consortium other than our subcontract for some time. I am not aware of any other involvement. Consequently, the degree of cooperation is something I can't really comment on. As far as I know the communication has been adequate for the tasks required, but I do not feel very well informed about the overall progress of the Consortium.

If I can provide any further help or expand or clarify any of these points, pleast let me know.

Sincerely yours,

John

John S. Helmick

JSH:dr

S-6

HUMAN RESOURCES RESEARCH ORGANIZATION
HumRRO
DIVISION NO. 3
POST OFFICE BOX 5787
PRESIDIO OF MONTEREY, CALIFORNIA 93940

TELEPHONE
AREA CODE 408
242-8349

15 September 1971

MEMORANDUM FOR: Dr. Joseph Ward
Far West Laboratory
2180 Milvia Street
Berkeley CA 94704

FROM: Dr. Elaine Taylor

SUBJECT: Response to Memo: "Consortium Development," from Dr. Ward (no date), received 13 September 1971

1. The following paragraphs are prepared in response to questions posed in the referenced memo.

a. The Consortium program is meeting the current needs of HumRRO, Division #3, with one exception. To date we have received none of the material for Module 3, Preparation of Consumer Oriented Information, for the Communication Skills Course.

b. The following end-of-module tests have been completed by HumRRO and forwarded to FWL, as well as to the agency(ies) charged with preparing the instructional material for the module:

(1) Information/Data Collection and Organization Course*

(a) Module 4 - Statistical Analysis End-of-Module Test

(b) Module 2 - Observing and Interviewing End-of-Module Test

(2) Communication Skills Course

(a) Module 2 - Listening and Speaking End-of-Module Test

c. A considerable amount of cooperative effort has existed among the agencies involved in the preparation of the Information/Data course. For example, written materials appropriate for

*Module 5 - Retrieval of Information Using Bibliographic Sources End-of-Module Test is nearing completion.

initiating a library search were sent to San Francisco State (Dr. Nick Sawin) to be used as examples of possible exercises by him. Dr. Sawin has provided us with library reference materials when they were not readily available at our location. FWL loaned us its video tape equipment when it was learned that our machine was not compatible with San Francisco State's player.

d. On a number of occasions we have utilized materials, forms, etc., from on-going or past research in our preparation of end-of-module tests.

e. Communication among the developers of the I/D course has been frequent and productive. We have conferred with both Dr. Ward and Dr. Sawin in the planning stages of our end-of-module tests. We have prepared written critiques and met informally to react to modules which have been prepared by other developers. Staff of AIR have used the statistics module material on a trial basis and results of their end-of-module tests have been forwarded to us.

ENT/sa

cc: Dr. McFann

P.S. In response to a phone inquiry from one of your staff, to date we have not used any materials which would require permission of copyright holders.

Sincerely,

ELAINE N. TAYLOR

S-8

SRI
STANFORD RESEARCH INSTITUTE
MENLO PARK, CALIFORNIA 94025
(415) 326-6200

14 September 1971

Dr. Joseph Ward
Far West Laboratory for
  Educational Research and Development
1 Garden Circle, Hotel Claremont
Berkeley, Calif. 94705

Dear Doctor Ward:

This is to respond to your request for comments on Consortium activities to this point.

Our participation so far has been in the development of the Planning and Design course and in particular in the preparation of student evaluation materials for that course. We also participated in planning the entire program.

We anticipate the part-time employment of a number of interns in the near future. They will be attending Canada College for their academic work in Consortium courses. They will work on a major evaluation program that we are conducting.

Since the inception of the Consortium program we have met with other developers to discuss matters of mutual interest and to cooperate in related development activities.

So far as we can judge from our activities in connection with one part of the consortium development program, the somewhat limited time and financial resources have been used efficiently in getting the program under way.

Communication with the Laboratory and among Consortium members has been satisfactory throughout the development process, in spite of difficulties rising from the diverse nature of the agencies and of their contributions to the Consortium program.

We anticipate continued cooperation with the Laboratory and with the other Consortium members in the further development and implementation of the program.

Sincerely,

Rittenhouse

Carl H. Rittenhouse
Senior Research Psychologist

CABLE: STANRES MENLO PARK / TWX 910-373-1246